

APPENDIX A.1: RAW DATA FOR THE CADAVER SAMPLE

Table 1: Table indicating the measurements (in millimetres) for the spinal nerve length (SNL)

Cadaver number	Sex	Age	L1		L2		L3		L4	
			Left	Right	Left	Right	Left	Right	Left	Right
7326	M	83	N/A	26.62	19.79	22.56	21.58	20.30	18.68	20.49
7332	M	75	21.34	18.22	20.03	23.93	20.11	21.43	22.20	26.16
7336	M	66	24.98	27.88	24.84	23.58	20.63	24.05	27.15	29.50
7389	M	78	22.45	22.29	21.69	21.71	21.40	20.91	22.43	20.41
7379	M	79	18.05	17.72	21.33	21.25	21.84	23.90	24.65	24.92
9411W	M	100	22.10	24.79	23.41	24.40	23.74	26.52	25.07	27.50
9408W	M	78	22.03	21.93	21.84	21.8	20.55	21.32	22.28	22.28
9428W	M	75	21.72	21.61	20.94	21.44	20.40	20.94	22.82	21.91
7338	F	67	19.59	20.26	21.10	22.10	17.38	21.18	20.58	23.93
7343	F	82	17.32	20.19	17.76	19.92	16.20	18.05	17.12	21.16
7344	F	90	24.48	24.65	17.97	20.59	17.18	16.24	17.56	19.78
7398	F	64	18.10	22.09	21.10	21.20	19.59	22.71	23.72	24.32
7399	F	80	20.97	20.40	22.15	21.34	21.80	23.15	21.78	20.09
9393W	F	29	21.42	22.92	22.05	23.47	22.12	21.26	23.10	24.74
9389W	F	81	20.70	21.84	21.09	20.97	20.60	21.00	21.37	22.32
9367W	F	76	21.03	20.56	21.38	21.78	21.64	21.07	N/A	N/A
9462W	F	51	21.37	21.22	22.69	21.90	21.22	22.82	23.32	22.30
9455W	F	82	22.30	23.94	24.41	23.57	20.72	22.04	23.13	25.23
7374	M	74	18.20	18.19	20.92	19.42	19.79	19.78	17.78	20.32
7381	F	79	20.02	20.89	22.18	23.38	20.16	20.03	23.80	24.99

Key: M = Male; F = Female; N/A = Not applicable – these are instances where the measurement was not possible to perform. All measurements are in millimetres. The cadaver numbers ending in 'W', are those obtained from the University of Witwatersrand

Table 2: Table indicating the measurements (in millimetres) for the dura mater length (DML)

Cadaver number	Sex	Age	L1		L2		L3		L4	
			Left	Right	Left	Right	Left	Right	Left	Right
7326	M	83	N/A	15.77	15.49	17.49	16.67	15.14	14.70	15.42
7332	M	75	16.32	13.00	15.26	17.15	17.40	17.97	16.83	15.18
7336	M	66	18.18	17.72	18.97	16.42	17.82	17.15	16.12	17.51
7389	M	78	16.19	13.73	16.10	17.94	15.92	16.62	17.51	16.93
7379	M	79	15.81	13.80	17.88	16.56	15.62	15.66	15.52	17.60
9411W	M	100	18.26	17.26	18.86	18.25	17.52	18.06	17.14	17.05
9408W	M	78	18.41	16.45	18.31	18.01	17.92	18.55	17.22	17.07
9428W	M	75	16.56	17.32	16.47	17.73	16.30	16.15	17.59	16.22
7338	F	67	11.67	11.41	17.93	13.12	17.46	16.96	17.78	16.22
7343	F	82	11.85	12.46	14.29	13.30	12.32	9.56	12.04	12.20
7344	F	90	20.84	16.84	13.80	14.42	14.86	12.50	13.80	14.60
7398	F	64	14.83	16.49	14.82	13.09	15.23	16.20	16.80	13.79
7399	F	80	12.81	14.25	18.02	17.93	19.35	18.82	18.98	18.84
9393W	F	29	16.74	17.63	16.38	16.20	16.59	16.50	16.15	16.24
9389W	F	81	17.26	16.65	16.34	15.46	17.94	16.27	16.66	17.74
9367W	F	76	16.65	17.52	17.32	17.49	16.52	16.10	N/A	N/A
9462W	F	51	16.88	17.42	17.39	16.50	16.85	17.10	16.21	16.82
9455W	F	82	16.12	16.22	16.97	17.70	16.37	17.15	16.05	17.42
7374	M	74	17.32	15.22	20.54	17.21	17.74	18.24	19.92	18.05
7381	F	79	17.24	17.07	17.01	15.82	15.22	15.25	17.12	14.58

Key: M = Male; F = Female; N/A = Not applicable – these are instances where the measurement was not possible to perform. All measurements are in millimetres. The cadaver numbers ending in ‘W’, are those obtained from the University of Witwatersrand

Table 3: Table indicating the measurements (in millimetres) for the distance from the dura mater to the nerve (DDMN)

Cadaver number	Sex	Age	L1		L2		L3		L4	
			Left	Right	Left	Right	Left	Right	Left	Right
7326	M	83	N/A	18.10	14.81	13.14	13.13	13.76	12.92	13.87
7332	M	75	14.94	14.12	12.53	12.56	13.88	14.24	15.18	17.00
7336	M	66	15.38	18.18	20.22	19.91	16.33	20.00	22.88	24.55
7389	M	78	19.82	19.48	16.64	16.69	16.87	18.12	18.33	17.59
7379	M	79	12.81	12.12	12.62	12.20	20.54	17.46	18.98	12.39
9411W	M	100	13.02	13.96	14.12	13.74	16.41	15.89	18.10	19.45
9408W	M	78	16.58	16.39	17.11	17.42	16.92	17.50	16.81	16.52
9428W	M	75	15.14	15.94	14.90	15.81	14.82	15.15	16.56	14.89
7338	F	67	15.69	14.26	15.87	12.44	16.94	14.23	18.14	19.25
7343	F	82	10.47	11.39	12.47	11.29	11.60	13.40	16.00	16.39
7344	F	90	17.14	12.57	12.84	13.87	12.44	11.00	14.20	13.76
7398	F	64	19.94	19.72	15.9	16.72	18.00	17.28	18.88	19.50
7399	F	80	15.08	13.14	17.44	18.86	15.33	17.24	15.92	16.25
9393W	F	29	15.67	16.02	17.61	17.10	16.52	15.90	18.00	18.84
9389W	F	81	15.62	15.69	14.82	14.31	15.54	15.38	16.13	17.15
9367W	F	76	15.54	16.79	16.20	16.24	15.36	16.10	N/A	N/A
9462W	F	51	15.40	15.00	15.67	15.25	15.60	15.00	14.62	15.02
9455W	F	82	17.34	17.38	17.30	18.35	15.75	15.52	18.02	17.88
7374	M	74	14.70	17.94	15.93	14.81	17.11	16.08	16.73	17.48
7381	F	79	13.35	13.01	16.67	14.29	14.51	14.18	17.85	17.88

Key: M = Male; F = Female; N/A = Not applicable – these are instances where the measurement was not possible to perform. All measurements are in millimetres. The cadaver numbers ending in ‘W’, are those obtained from the University of Witwatersrand

Table 4: Table indicating the position of the dorsal root ganglion

Cadaver number	Sex	Age	L1		L2		L3		L4	
			Left	Right	Left	Right	Left	Right	Left	Right
7326	M	83	N/A	A	B	B	B	C	B	B
7332	M	75	C	C	B	B	B	B	B	B
7336	M	66	A	A	B	B	A	B	B	B
7389	M	78	B	A	B	B	B	A	B	B
7379	M	79	B	B	B	B	C	C	A	A
9411W	M	100	C	C	A	B	B	B	B	C
9408W	M	78	B	A	B	A	B	B	B	B
9428W	M	75	B	A	B	B	B	B	C	C
7338	F	67	B	B	B	B	A	A	B	B
7343	F	82	B	B	B	B	C	B	B	B
7344	F	90	B	B	B	B	B	B	C	C
7398	F	64	B	B	B	B	B	A	C	C
7399	F	80	C	A	B	A	B	B	C	C
9393W	F	29	B	A	B	B	B	B	C	C
9389W	F	81	B	A	B	B	B	B	C	C
9367W	F	76	B	A	A	B	B	B	N/A	N/A
9462W	F	51	B	B	B	B	B	B	C	C
9455W	F	82	B	A	B	B	B	B	C	C
7374	M	74	A	B	B	A	B	B	B	B
7381	F	79	B	B	A	B	B	B	C	C

Key: M = Male; F = Female; A = Position A (medial foraminal); B = Position B (middle foraminal); C = Position C (extra-foraminal); N/A = Not applicable – these are instances where the measurement was not possible to perform. The cadaver numbers ending in 'W', are those obtained from the University of Witwatersrand

APPENDIX A.2: RAW DATA FOR CT SCANS – LLA AND BMD

Table 1: Table indicating the raw data for the LLA using the CT scans

Case ID	P	Age	LLA
175281	BF	28	32.9
376411	BF	41	22
696271	BF	27	13.2
940381	BF	38	24.6
1188251	BF	25	22.7
1689331	BF	33	22.4
1983451	BF	45	33.8
2286451	BF	45	33.3
2622521	BF	52	42.9
3313231	BF	23	34.5
4006211	BF	21	33.5
4811371	BF	37	19.6
4921271	BF	27	27.9
5378491	BF	49	41.9
5642231	BF	23	26.2
6309241	BF	24	50.4
7346221	BF	22	32.1
7479241	BF	24	44.5
7591291	BF	29	12.3
7963301	BF	30	20.6
8677261	BF	26	24.1
10277341	BF	34	27.8
745400	BM	40	31.8
1224630	BM	63	42.2
1751390	BM	39	26.7
1837250	BM	25	39.3
2139430	BM	43	30.4
2336320	BM	32	42.9
2583380	BM	38	34.3
2838310	BM	31	24.8
2975380	BM	38	33.5
3591250	BM	25	20.2
3796340	BM	34	24.9
3819360	BM	36	8.3

Case ID	P	Age	LLA
4274270	BM	27	36.6
4421330	BM	33	25.3
4518330	BM	33	44.5
4759360	BM	36	16.3
5114370	BM	37	39.4
5989270	BM	27	25.6
6105390	BM	39	32.7
6426270	BM	27	25.3
6771200	BM	20	19.1
7172230	BM	23	27.3
8199370	BM	37	26.7
8213390	BM	39	18.9
8313270	BM	27	30.1
8720220	BM	22	23.2
8887370	BM	37	30.6
9053260	BM	26	22.1
9519250	BM	25	25.1
9895210	BM	21	40.5
10037320	BM	32	30.8
10318380	BM	38	47
543250	BM	25	24.4
228651	WF	65	28.4
1041321	WF	32	45.8
1391501	WF	50	46.1
1505241	WF	24	42.2
3080371	WF	37	48.5
4697341	WF	34	33.6
5049551	WF	55	35.1
5219261	WF	26	38.6
6672461	WF	46	48.9
7010401	WF	40	31.4
8517231	WF	23	34.9
8968431	WF	43	22.7
9444231	WF	23	32.7
9766331	WF	33	29.7
474590	WM	59	21.8
844300	WM	30	37
2446350	WM	35	37
2796360	WM	36	32.4

Case ID	P	Age	LLA
3406620	WM	62	43.2
3996360	WM	36	31.9
4337270	WM	27	28
5431250	WM	25	28.7
5816390	WM	39	45.3
8064380	WM	38	24.6
9672360	WM	36	31.6
10153260	WM	26	24.2
10412510	WM	51	32.9

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; LLA = Lumbar lordosis angle measurement. All measurements are in degrees

Table 2: Table indicating the BMD measurements taken at the region of interest 1 (ROI1) on the CT scans

Case ID	P	Age	ROI1				
			L1	L2	L3	L4	L5
175281	BF	28	233	226	239	254	265
376411	BF	41	213	233	220	225	218
696271	BF	27	198	166	188	216	250
940381	BF	38	190	205	218	247	102
1188251	BF	25	261	267	299	335	248
1689331	BF	33	194	194	184	205	169
1983451	BF	45	172	200	231	171	203
2286451	BF	45	200	213	195	221	179
2622521	BF	52	171	166	189	189	154
3313231	BF	23	229	225	191	189	196
4006211	BF	21	236	234	285	261	279
4811371	BF	37	236	218	235	222	219
4921271	BF	27	197	178	217	180	208
5378491	BF	49	170	191	227	223	208
5642231	BF	23			359	356	368
6309241	BF	24	243	236	248	199	237
7346221	BF	22	254	255	203	238	229
7479241	BF	24	265	237	253	267	249
7591291	BF	29	261	260	246	259	274
7963301	BF	30	226	235	243	202	250
8677261	BF	26	222	222	223	215	238

Case ID	P	Age	ROI1				
			L1	L2	L3	L4	L5
10277341	BF	34	215	218	217	211	224
745400	BM	40	211	222	231	238	211
1224630	BM	63		145		134	107
1751390	BM	39	222	215	216	213	219
1837250	BM	25	208	204	220	215	210
2139430	BM	43	222	236	227	236	219
2336320	BM	32	235	266	257	253	257
2583380	BM	38	229	229	231	228	243
2838310	BM	31	275	255	279	259	307
2975380	BM	38	229	222	217	224	236
3591250	BM	25	237	236	234	255	278
3796340	BM	34	228	222	242	220	218
3819360	BM	36	226	229	250	268	255
4274270	BM	27	227	231	255	264	234
4421330	BM	33	243	219	213	238	
4518330	BM	33	247	232	227	263	262
4759360	BM	36	244	258	270	264	254
5114370	BM	37	209	214	247	252	240
5989270	BM	27	240	218	238	254	215
6105390	BM	39	245	234	240	232	
6426270	BM	27	240	233	249	264	242
6771200	BM	20	246	265	256	240	242
7172230	BM	23	204	201	204	257	225
8199370	BM	37	252	235	268	251	207
8213390	BM	39	250	257	262	253	250
8313270	BM	27	263	240	234	258	238
8720220	BM	22	236	246	220	254	219
8887370	BM	37	274	269	266	256	253
9053260	BM	26	259	285	267	294	285
9519250	BM	25	270	289	231	227	249
9895210	BM	21	289	297	312	293	
10037320	BM	32	273	276	280	271	288
10318380	BM	38	213	215	214	222	224
543250	BM	25	185	212	175	212	213
228651	WF	65	99.2	70.1	70.5	97	119.2
1041321	WF	32	233	220	270	257	295
1391501	WF	50	155	178	168	184	151
1505241	WF	24	146	151	170	164	200

Case ID	P	Age	ROI1				
			L1	L2	L3	L4	L5
3080371	WF	37	243	243	242	203	225
4697341	WF	34	227	225	207	202	219
5049551	WF	55	129	121	128	110	109
5219261	WF	26	231	239	241	238	246
6672461	WF	46	178	172	175	187	192
7010401	WF	40	209	213	200	214	217
8517231	WF	23	221	214	218	215	218
8968431	WF	43	215	231	263	230	265
9444231	WF	23	243	266	249	251	243
9766331	WF	33	239	245	230	269	242
474590	WM	59		160	158	143	231
844300	WM	30	208	218	245	299	261
2446350	WM	35	186	197	220	230	186
2796360	WM	36	213	221	214	207	193
3406620	WM	62	208	203	239	235	205
3996360	WM	36	226	222	257	281	281
4337270	WM	27	219	255	292	247	272
5431250	WM	25	214	217	222	213	216
5816390	WM	39	211	204	209	205	228
8064380	WM	38	221	226	243	235	228
9672360	WM	36		278	258	277	238
10153260	WM	26	213	214	213	208	228
10412510	WM	51	191	180	198	187	181

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in Hounsfield units. Blank cells are those where measurements could not be performed

Table 3: Table indicating the BMD measurements taken at the region of interest 2 (ROI2) on the CT scans

Case ID	P	Age	ROI2				
			L1	L2	L3	L4	L5
175281	BF	28	217	240	215	230	216
376411	BF	41	240.5	253	232	219	213
696271	BF	27	174	193	177	190	205
940381	BF	38	210	213	215	191.5	201
1188251	BF	25	257	270	245	275	246
1689331	BF	33	173	182	172	163	174
1983451	BF	45	153	180	170	178	153
2286451	BF	45	167	158	179	134	169
2622521	BF	52	126	120	113	109	112
3313231	BF	23	183	181	162	163	178
4006211	BF	21	191	177	184	190	
4811371	BF	37	205	204	191	193	181
4921271	BF	27	151	156	144	122	156
5378491	BF	49	138	127	100	106	102
5642231	BF	23	356	349	335	310	335
6309241	BF	24	179	167	169	163	197
7346221	BF	22	200	197	196	188	194
7479241	BF	24	226	222	235	233	243
7591291	BF	29	226	221	219	234	260
7963301	BF	30	127	127	107	103	124
8677261	BF	26	203	174	177	169	180
10277341	BF	34	196	189	194	194	205
745400	BM	40	232	239	220	208	284
1224630	BM	63	142	157	146	144	193
1751390	BM	39	230	239	228	221	200
1837250	BM	25	198	194	177	181	175
2139430	BM	43	232	232	195	199	222
2336320	BM	32	219	213	216	208	243
2583380	BM	38	217	214	218	221	214
2838310	BM	31	240	236	230	232	258
2975380	BM	38	219	220	210	210	211
3591250	BM	25	198	197	191	208	287
3796340	BM	34	203	205	212	215	204
3819360	BM	36	246	240	233	240	239

Case ID	P	Age	ROI2				
			L1	L2	L3	L4	L5
4274270	BM	27	196	179	175	190	177
4421330	BM	33	191	194	181	187	
4518330	BM	33	232	216	220	228	228
4759360	BM	36	239	239	225	248	237
5114370	BM	37	186	194	198	197	227
5989270	BM	27	210	191	179	187	185
6105390	BM	39	209	198	218	216	
6426270	BM	27	221	216	201	199	209
6771200	BM	20	246	236	229	218	226
7172230	BM	23	154	140	135	148	155
8199370	BM	37	209	188	184	188	192
8213390	BM	39	234	247	238	243	242
8313270	BM	27	215	218	216	226	223
8720220	BM	22	175	170	171	166	173
8887370	BM	37	257	227	218	222	244
9053260	BM	26	240	237	226	238	276
9519250	BM	25	238	242	221	229	243
9895210	BM	21	279	262	249	247	
10037320	BM	32	263	262	251	260	250
10318380	BM	38	207	203	203	193	199
543250	BM	25	191	164	184	158	170
228651	WF	65	158	79.4	79.5	71.7	66.8
1041321	WF	32	243	236	249	255	232
1391501	WF	50	190	197	146	178	148
1505241	WF	24	157	144	141	135	173
3080371	WF	37	167	170	154	162	176
4697341	WF	34	210	199	197	199	206
5049551	WF	55	97.2	99.3	96.4	99.5	97.6
5219261	WF	26	217	220	221	227	233
6672461	WF	46	170	174	168	181	188
7010401	WF	40	196	196	191	183	179
8517231	WF	23	212	214	216	218	224
8968431	WF	43	163	162	166	183	219
9444231	WF	23	236	239	229	242	241
9766331	WF	33	222	227	210	223	217
474590	WM	59	168	152	163	154	159
844300	WM	30	248	209	170	196	187
2446350	WM	35	133	138	136	138	139

Case ID	P	Age	ROI2				
			L1	L2	L3	L4	L5
2796360	WM	36	185	173	166	183	173
3406620	WM	62	145	144	137	154	159
3996360	WM	36	194	198	197	196	199
4337270	WM	27	198	199	183	187	191
5431250	WM	25	155	168	145	179	197
5816390	WM	39	215	207	195	189	206
8064380	WM	38	180	171	162	177	164
9672360	WM	36	214	204	197	196	192
10153260	WM	26	186	186	181	179	192
10412510	WM	51	149	145	156	155	165

Key: P = Population group BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in Hounsfield units. Blank cells are those where measurements could not be performed

Table 4: Table indicating the BMD measurements taken at the region of interest 3 (ROI3) on the CT scans

Case ID	P	Age	ROI3				
			L1	L2	L3	L4	L5
175281	BF	28	213.5	216	247	240	241
376411	BF	41	264	281	227.5	252	231
696271	BF	27	267	257	276	234	196
940381	BF	38	248	254	233	213	191
1188251	BF	25	338	376	365	301	288
1689331	BF	33	192	189	195	175	180
1983451	BF	45	164	163	171	177	180
2286451	BF	45	201	198	183	171	188
2622521	BF	52	163	136	135	119	111
3313231	BF	23	229	259	178	188	206
4006211	BF	21	224	271	204	228	
4811371	BF	37	232	228	227	227	225
4921271	BF	27	195	218	178	196	183
5378491	BF	49	243	153	245	186	155
5642231	BF	23	417	383	385	376	356
6309241	BF	24	269	248	277	218	214
7346221	BF	22	246	239	241	217	221
7479241	BF	24	294	291	289	269	267

Case ID	P	Age	ROI3				
			L1	L2	L3	L4	L5
7591291	BF	29	251	285	265	275	285
7963301	BF	30	272	206	204	294	235
8677261	BF	26	224	243	239	266	237
10277341	BF	34	207	214	227	231	229
745400	BM	40	231	249	228	214	253
1224630	BM	63	132	178	138	137	151
1751390	BM	39	266	281	247	231	208
1837250	BM	25	204	206	216	201	190
2139430	BM	43	256	241	243	221	243
2336320	BM	32	233	230	247	233	256
2583380	BM	38	234	238	241	238	250
2838310	BM	31	296	291	254	291	264
2975380	BM	38	247	238	244	249	243
3591250	BM	25	241	247	257	215	239
3796340	BM	34	238	227	226	242	243
3819360	BM	36	262	263	260	259	274
4274270	BM	27	238	231	221	240	227
4421330	BM	33	216	206	208	217	
4518330	BM	33	263	246	240	248	246
4759360	BM	36	238	251	242	264	276
5114370	BM	37	247	214	253	228	270
5989270	BM	27	260	227	277	289	318
6105390	BM	39	236	246	247	239	
6426270	BM	27	247	264	239	296	255
6771200	BM	20	269	284	283	288	289
7172230	BM	23	216	220	223	210	214
8199370	BM	37	265	254	295	207	286
8213390	BM	39	274	266	260	265	268
8313270	BM	27	277	260	273	250	260
8720220	BM	22	269	232	279	270	232
8887370	BM	37	282	273	277	286	266
9053260	BM	26	290	293	294	300	300
9519250	BM	25	258	268	249	249	270
9895210	BM	21	294	302	296	294	
10037320	BM	32	316	303	294	294	292
10318380	BM	38	229	224	213	212	228
543250	BM	25	186.5	171	249	210	272
228651	WF	65	140			151.5	187

Case ID	P	Age	ROI3				
			L1	L2	L3	L4	L5
1041321	WF	32	277	261		274	258
1391501	WF	50	232	232	215	197	181
1505241	WF	24	195	157	168	157	164
3080371	WF	37	225	207	234	233	197
4697341	WF	34	231	223	219	227	238
5049551	WF	55	121			103	114
5219261	WF	26	243	237	232	232	252
6672461	WF	46	204	213	232	246	255
7010401	WF	40	207	212	218	225	232
8517231	WF	23	224	228	227	230	235
8968431	WF	43	251	223	242	274	292
9444231	WF	23	245	245	252	268	264
9766331	WF	33	247	264	259	260	251
474590	WM	59	168	199	219	177	175
844300	WM	30	270	239	241	219	202
2446350	WM	35	182	208	235	194	197
2796360	WM	36	244	237	244	208	209
3406620	WM	62	212	159	200	232	203
3996360	WM	36	239	262	246	238	243
4337270	WM	27	213	217	222	211	235
5431250	WM	25	230	247	207	239	207
5816390	WM	39	247	226	227	218	237
8064380	WM	38	198	195	205	215	223
9672360	WM	36	264	250	232	255	250
10153260	WM	26	213	210	223	220	282
10412510	WM	51	192	187	209	224	190

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in Hounsfield units. Blank cells are those where measurements could not be performed

Table 5: Table indicating the BMD measurements taken at the superior endplate (SEP) on the CT scans

Case ID	P	Age	SEP				
			L1	L2	L3	L4	L5
175281	BF	28	315	325	330	356	309
376411	BF	41	296	275	416	317	411
696271	BF	27	366	394	327	350	311
940381	BF	38	475	412	353	384	323
1188251	BF	25	444	423	406	505	384
1689331	BF	33	428	395	404	422	334
1983451	BF	45	428	454	443	427	448
2286451	BF	45	360	340	382	384	323
2622521	BF	52	467	452	415	493	389
3313231	BF	23	583	563	576	555	540
4006211	BF	21	477	549	552	635	
4811371	BF	37	526	484	424	403	394
4921271	BF	27	533	441	470	510	387
5378491	BF	49	377	445	403	408	396
5642231	BF	23	573	538	551	584	601
6309241	BF	24	436	440	468	441	463
7346221	BF	22	422	431	401	414	360
7479241	BF	24	511	569	505	570	582
7591291	BF	29	518	565	560	526	564
7963301	BF	30	438	487	535	520	535
8677261	BF	26	472	483	495	522	526
10277341	BF	34	532	560	589	576	655
745400	BM	40	485	494	427	458	373
1224630	BM	63	661	411	338	325	449
1751390	BM	39	417	431	425	547	462
1837250	BM	25	327	365	357	388	308
2139430	BM	43	379	442	479	441	440
2336320	BM	32	433	481	429	506	491
2583380	BM	38	410	414	462	502	457
2838310	BM	31	455	541	551	458	496
2975380	BM	38	420	424	478	539	495
3591250	BM	25	405	424	386	497	404
3796340	BM	34	462	498	483	561	569
3819360	BM	36	443	462	420	475	446

Case ID	P	Age	SEP				
			L1	L2	L3	L4	L5
4274270	BM	27	475	491	520	572	452
4421330	BM	33	344	416	438	411	
4518330	BM	33	557	569	657	533	562
4759360	BM	36	448	493	477	525	452
5114370	BM	37	523	526	575	549	562
5989270	BM	27	377	483	466	517	444
6105390	BM	39	416	383	487	501	470
6426270	BM	27	463	465	470	472	426
6771200	BM	20	450	484	615	559	560
7172230	BM	23	379	348	405	441	342
8199370	BM	37	443	518	541	524	594
8213390	BM	39	534	590	609	528	586
8313270	BM	27	437	508	648	684	617
8720220	BM	22	479	484	453	518	543
8887370	BM	37	559	532	577	493	545
9053260	BM	26	514	568	535	541	493
9519250	BM	25	495	479	514	543	502
9895210	BM	21	586	548	584	635	640
10037320	BM	32	535	588	545	550	486
10318380	BM	38	383	399	437	456	382
543250	BM	25	283	287	287	314	378
228651	WF	65	255	352	338	262	318
1041321	WF	32	533	434	520	539	486
1391501	WF	50	360	261	288	264	331
1505241	WF	24	283	253	285	312	279
3080371	WF	37	421	532	424	378	443
4697341	WF	34	434	435	462	377	375
5049551	WF	55	463	349	386	349	350
5219261	WF	26	439	436	450	441	432
6672461	WF	46	419	401	501	520	443
7010401	WF	40	460	431	460	497	429
8517231	WF	23	590	581	537	615	615
8968431	WF	43	497	519	521	540	563
9444231	WF	23	546	579	559	556	565
9766331	WF	33	448	512	558	586	567
474590	WM	59	360	375	385	424	371
844300	WM	30	439	469	619	547	481
2446350	WM	35	342	295	294	368	287

Case ID	P	Age	SEP				
			L1	L2	L3	L4	L5
2796360	WM	36	421	501	521	440	427
3406620	WM	62	411	476	438	562	426
3996360	WM	36	449	477	489	494	359
4337270	WM	27	475	562	593	535	517
5431250	WM	25	358	480	414	434	335
5816390	WM	39	418	423	424	525	469
8064380	WM	38	494	482	470	478	460
9672360	WM	36		577	608	570	513
10153260	WM	26	442	443	490	461	496
10412510	WM	51	443	405	411	420	379

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in Hounsfield units. Blank cells are those where measurements could not be performed

Table 6: Table indicating the BMD measurements taken at the inferior endplate (IEP) on the CT scans

Case ID	P	Age	IEP				
			L1	L2	L3	L4	L5
175281	BF	28	402	468	524	579	327
376411	BF	41	380	496	461	385	440
696271	BF	27	303	444	452	380	390
940381	BF	38	368	426	356	418	385
1188251	BF	25	577	549	613	579	664
1689331	BF	33	378	440	416	488	446
1983451	BF	45	446	430	437	502	498
2286451	BF	45	436	375	334	363	487
2622521	BF	52	464	648	589	554	439
3313231	BF	23	539	544	576	601	632
4006211	BF	21	601	730	671	543	
4811371	BF	37	494	456	557	538	444
4921271	BF	27	424	478	454	518	434
5378491	BF	49	419	574	441	557	436
5642231	BF	23	582	608	682	627	638
6309241	BF	24	426	462	468	472	412
7346221	BF	22	477	464	485	499	505
7479241	BF	24	556	550	596	623	616

Case ID	P	Age	IEP				
			L1	L2	L3	L4	L5
7591291	BF	29	594	622	663	755	585
7963301	BF	30	546	504	564	626	601
8677261	BF	26	487	515	531	617	611
10277341	BF	34	629	572	640	704	710
745400	BM	40	639	453	524	436	447
1224630	BM	63	438	323	402	504	495
1751390	BM	39	409	510	556	625	465
1837250	BM	25	360	351	344	356	425
2139430	BM	43	496	481	483	616	496
2336320	BM	32	596	555	662	601	565
2583380	BM	38	370	361	496	646	517
2838310	BM	31	415	414	575	541	633
2975380	BM	38	443	513	564	513	652
3591250	BM	25	455	490	522	653	565
3796340	BM	34	526	567	591	568	586
3819360	BM	36	574	579	531	592	669
4274270	BM	27	452	517	431	692	631
4421330	BM	33	457	530	519	551	
4518330	BM	33	547	541	578	676	623
4759360	BM	36	629	567	642	665	486
5114370	BM	37	513	514	574	513	556
5989270	BM	27	460	604	597	708	638
6105390	BM	39	469	430	468	443	494
6426270	BM	27	502	520	586	574	554
6771200	BM	20	564	600	768	679	554
7172230	BM	23	403	372	412	628	360
8199370	BM	37	563	532	521	587	553
8213390	BM	39	572	534	607	551	633
8313270	BM	27	564	606	703	684	722
8720220	BM	22	577	546	596	609	608
8887370	BM	37	518	610	507	563	631
9053260	BM	26	492	535	526	535	546
9519250	BM	25	443	404	571	588	627
9895210	BM	21	522	595	566	750	640
10037320	BM	32	565	627	672	667	618
10318380	BM	38	442	493	510	538	560
543250	BM	25	293	299		331	501
228651	WF	65	267	286	296	488	386

Case ID	P	Age	IEP				
			L1	L2	L3	L4	L5
1041321	WF	32	667	493	601	543	543
1391501	WF	50	275	356	417	445	400
1505241	WF	24	315	287	373	319	378
3080371	WF	37	437	614	520	467	422
4697341	WF	34	421	421	482	466	433
5049551	WF	55	484	344	439	373	413
5219261	WF	26	451	445	429	423	450
6672461	WF	46	540	547	554	480	626
7010401	WF	40	493	458	449	509	582
8517231	WF	23	562	567	602	523	564
8968431	WF	43	543	525	569	619	520
9444231	WF	23	617	592	614	617	653
9766331	WF	33	586	535	603	653	684
474590	WM	59	373	468	580	544	347
844300	WM	30	471	563	625	718	577
2446350	WM	35	352	371	328	364	299
2796360	WM	36	582	566	513	587	511
3406620	WM	62	430	483	424	512	462
3996360	WM	36	425	492	520	589	653
4337270	WM	27	471	443	505	533	507
5431250	WM	25	319	396	413	465	525
5816390	WM	39	416	454	585	503	532
8064380	WM	38	563	535	554	517	513
9672360	WM	36	516	552	572	668	690
10153260	WM	26	451	490	466	550	556
10412510	WM	51	356	379	397	408	400

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in Hounsfield units. Blank cells are those where measurements could not be performed

Table 7: Table indicating the BMD measurements taken at the anterior border (AB) on the CT scans

Case ID	P	Age	AB				
			L1	L2	L3	L4	L5
175281	BF	28	439	377	441	332	478
376411	BF	41	483	402	411	340	426
696271	BF	27	421	445	447	467	440
940381	BF	38	531	474	514	492	432
1188251	BF	25	516	597	549	585	550
1689331	BF	33	384	470	447	424	495
1983451	BF	45	335	447	418	423	427
2286451	BF	45	461	412	427	440	356
2622521	BF	52	331	350	395	316	374
3313231	BF	23	498	539	491	526	492
4006211	BF	21	486	442	479	543	
4811371	BF	37	395	424	482	419	402
4921271	BF	27	415	412	404	458	423
5378491	BF	49	412	375	319	343	310
5642231	BF	23	563	571	535	543	546
6309241	BF	24	501	520	526	462	504
7346221	BF	22	394	406	385	401	495
7479241	BF	24	476	540	483	504	613
7591291	BF	29	659	575	533	560	611
7963301	BF	30	420	438	447	419	555
8677261	BF	26	483	547	465	450	476
10277341	BF	34	364	368	422	430	481
745400	BM	40	366	421	407	445	466
1224630	BM	63	383	320	350	317	320
1751390	BM	39	500	420	437	407	508
1837250	BM	25	347	357	452	575	406
2139430	BM	43	445	472	438	561	557
2336320	BM	32	461	465	425	461	514
2583380	BM	38	439	423	390	411	463
2838310	BM	31	473	508	511	470	584
2975380	BM	38	462	517	485	421	426
3591250	BM	25	413	403	433	463	507
3796340	BM	34	407	450	415	531	543
3819360	BM	36	452	417	449	482	517

Case ID	P	Age	AB				
			L1	L2	L3	L4	L5
4274270	BM	27	452	403	472	414	584
4421330	BM	33	371	368	407	452	
4518330	BM	33	391	373	388	450	463
4759360	BM	36	456	494	489	469	543
5114370	BM	37	451	442	471	406	549
5989270	BM	27	425	449	448	451	505
6105390	BM	39	448	465	501	508	495
6426270	BM	27	488	481	469	479	559
6771200	BM	20	443	456	457	471	517
7172230	BM	23	413	433	448	428	433
8199370	BM	37	419	414	479	436	561
8213390	BM	39	514	563	484	486	650
8313270	BM	27	479	479	476	460	602
8720220	BM	22	382	382	326	335	466
8887370	BM	37	514	541	499	489	572
9053260	BM	26	566	572	548	560	590
9519250	BM	25	436	454	476	484	573
9895210	BM	21	521	507	555	507	603
10037320	BM	32	436	430	410	446	512
10318380	BM	38	436	414	388	388	492
543250	BM	25	339	367	393	392	524
228651	WF	65	297	507	437	264	419
1041321	WF	32	472	394	376	487	474
1391501	WF	50	373	437	401	390	416
1505241	WF	24	373	476	455	417	457
3080371	WF	37	390	400	387	502	497
4697341	WF	34	471	446	494	527	577
5049551	WF	55	297	339	321	343	372
5219261	WF	26	428	437	414	417	466
6672461	WF	46	479	463	446	472	478
7010401	WF	40	431	501	491	456	552
8517231	WF	23	484	507	469	555	520
8968431	WF	43	433	509	456	580	613
9444231	WF	23	626	611	562	586	651
9766331	WF	33	503	543	605	567	630
474590	WM	59	282	378	372	367	510
844300	WM	30	396	341	404	346	402
2446350	WM	35	388	419	367	334	407

Case ID	P	Age	AB				
			L1	L2	L3	L4	L5
2796360	WM	36	423	438	562	567	466
3406620	WM	62	364	348	338	342	439
3996360	WM	36	406	414	495	473	459
4337270	WM	27	483	463	475	441	465
5431250	WM	25	445	416	416	421	499
5816390	WM	39	460	371	458	476	515
8064380	WM	38	464	364	368	387	414
9672360	WM	36	439	413	512	504	646
10153260	WM	26	428	426	393	403	488
10412510	WM	51	392	511	442	497	462

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in Hounsfield units. Blank cells are those where measurements could not be performed

Table 8: Table indicating the BMD measurements taken at the posterior border (PB) on the CT scans

Case ID	P	Age	PB				
			L1	L2	L3	L4	L5
175281	BF	28	298	366	300	341	375
376411	BF	41	396	302	286	333	405
696271	BF	27	414	375	382	459	558
940381	BF	38	376	632	457	558	354
1188251	BF	25	472	654	576	736	703
1689331	BF	33	442	526	543	461	467
1983451	BF	45	571	585	556	612	425
2286451	BF	45	528	553	563	647	623
2622521	BF	52	496	486	643	555	447
3313231	BF	23	702	803	622	681	648
4006211	BF	21	832	798	834	902	
4811371	BF	37	569	679	715	715	705
4921271	BF	27	436	495	542	637	492
5378491	BF	49	670	679	681	684	563
5642231	BF	23	665	720	892	930	959
6309241	BF	24	779	759	704	774	689
7346221	BF	22	743	720	729	798	556
7479241	BF	24	607	649	740	786	730

Case ID	P	Age	PB				
			L1	L2	L3	L4	L5
7591291	BF	29	628	693	678	676	733
7963301	BF	30	733	656	823	575	553
8677261	BF	26	592	839	742	709	656
10277341	BF	34	476	521	735	765	615
745400	BM	40	402	524	375	569	683
1224630	BM	63	327	465	435	571	586
1751390	BM	39	441	532	654	677	576
1837250	BM	25	408	593	502	514	471
2139430	BM	43	566	761	654	721	517
2336320	BM	32	491	450	485	517	431
2583380	BM	38	602	671	680	624	719
2838310	BM	31	590	678	662	645	729
2975380	BM	38	550	688	668	648	653
3591250	BM	25	633	564	668	631	577
3796340	BM	34	798	767	710	772	797
3819360	BM	36	584	610	600	633	615
4274270	BM	27	550	617	775	850	807
4421330	BM	33	564	554	606	690	
4518330	BM	33	698	708	807	826	840
4759360	BM	36	553	644	655	643	702
5114370	BM	37	641	787	786	774	746
5989270	BM	27	502	692	717	764	600
6105390	BM	39	536	787	766	756	856
6426270	BM	27	558	727	720	785	791
6771200	BM	20	503	649	791	755	680
7172230	BM	23	415	621	695	685	695
8199370	BM	37	456	473	727	800	671
8213390	BM	39	707	857	812	823	842
8313270	BM	27	691	826	881	827	639
8720220	BM	22	504	514	632	682	658
8887370	BM	37	864	926	772	976	760
9053260	BM	26	513	797	830	814	682
9519250	BM	25	519	718	529	685	584
9895210	BM	21	682	853	816	911	565
10037320	BM	32	588	653	641	659	660
10318380	BM	38	529	584	618	631	519
543250	BM	25	300	268	426	483	593
228651	WF	65	192	151	181	275	221

Case ID	P	Age	PB				
			L1	L2	L3	L4	L5
1041321	WF	32	409	531	627	792	382
1391501	WF	50	606	440	419	566	328
1505241	WF	24	315	432	724	695	416
3080371	WF	37	677	690	519	467	421
4697341	WF	34	493	555	780	774	775
5049551	WF	55	643	599	652	648	573
5219261	WF	26	556	536	689	658	544
6672461	WF	46	556	691	635	739	460
7010401	WF	40	536	672	629	762	737
8517231	WF	23	584	867	850	835	854
8968431	WF	43	572	862	853	949	697
9444231	WF	23	670	686	739	740	796
9766331	WF	33	622	720	805	778	750
474590	WM	59	239	317	417	337	350
844300	WM	30	434	584	632	570	439
2446350	WM	35	518	663	454	425	557
2796360	WM	36	429	537	777	598	566
3406620	WM	62	523	597	756	718	695
3996360	WM	36	457	483	507	488	643
4337270	WM	27	606	704	581	659	758
5431250	WM	25	403	680	658	736	514
5816390	WM	39	758	829	736	723	553
8064380	WM	38	623	675	787	690	653
9672360	WM	36	627	798	892	734	662
10153260	WM	26	449	551	629	600	693
10412510	WM	51	469	707	793	733	612

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in Hounsfield units. Blank cells are those where measurements could not be performed

**APPENDIX A.3: RAW DATA FOR CT SCANS – POSTERIOR
ELEMENTS AND SPINAL CANAL**

Table 1: Table indicating the transverse process length (TPL) measurements taken on the CT scans

Case ID	P	Age	TPL				
			L1	L2	L3	L4	L5
175281	BF	28	75.3	91.2	94.6	89.6	102
376411	BF	41	62.1	78.6	103	92.1	98.4
696271	BF	27	67.2	77.3	84.5	89.9	89
940381	BF	38	60.5	69.4	75.8	85.6	75.8
1188251	BF	25	58.7	73	81.2	77.6	77.6
1689331	BF	33	57.6	73.1	77.1	79.1	87.1
1983451	BF	45	56.3	66.1	78.7	77.9	73.3
2286451	BF	45	70.9	85	93.1	89.6	89.8
2622521	BF	52	68.1	87.3	96.2	86.7	93.3
3313231	BF	23	67.7	71.2	76.1	79.5	79.5
4006211	BF	21	61.4	70	77.9	78.9	
4811371	BF	37	58.4	74.7	82.6	89.2	93.1
4921271	BF	27	64.3	83	96	90.7	96.5
5378491	BF	49	65.8	75.9	86.4	73	80.2
5642231	BF	23	65.9	72.5	81.7	77.3	82.7
6309241	BF	24	71.4	83.5	92.6	58.5	86.2
7346221	BF	22	58.9	69.5	73.9	77.1	74
7479241	BF	24	72.6	77.8	92.5	81.3	89.2
7591291	BF	29	63.4	74.7	78.8	83.5	94.6
7963301	BF	30	69.8	76.2	97.2	87.5	88.2
8677261	BF	26	65.8	68.8	80.9	76.5	71.5
10277341	BF	34	71.9	81.8	93.8	82.8	83.4
745400	BM	40	79.3	89.1	101	81.6	93.9
1224630	BM	63	65.2	67.8	89.6	91.6	88.4
1751390	BM	39	74.6	80.3	92.2	88.3	92.5
1837250	BM	25	84.6	75.4	81.9	90.4	88.7
2139430	BM	43	75.5	84.1	97	86.7	90
2336320	BM	32	79.5	93.3	94.9	94.5	95
2583380	BM	38	75.7	89.3	98.4	97.1	89.8
2838310	BM	31	82.4	97.2	106	101	96.6

Case ID	P	Age	TPL				
			L1	L2	L3	L4	L5
2975380	BM	38	70.8	82.7	96.8	92.9	97.6
3591250	BM	25	94.1	102	104	107	106
3796340	BM	34	78.9	85.8	95.5	89.4	93.5
3819360	BM	36	76.9	83.4	94	85.4	92.2
4274270	BM	27	75	89.3	99.4	93.3	95.2
4421330	BM	33	89.3	103	110	89.8	
4518330	BM	33	73.2	92.3	103	88.5	93.5
4759360	BM	36	73.4	83.4	97.9	99.2	93.3
5114370	BM	37	83.1	92.9	101	93.3	89.8
5989270	BM	27	70.9	87.9	94.8	88.9	93
6105390	BM	39	83.5	95.3	110	96.7	102
6426270	BM	27	77.3	83.8	92.6	81.5	87
6771200	BM	20	59.6	77.3	88.8	79.9	82.7
7172230	BM	23	70.4	88.1	103	89.8	92
8199370	BM	37	70.3	84.7	101	90.8	94.2
8213390	BM	39	81.7	92.1	113	102	98.1
8313270	BM	27	77.2	87	95.5	93.9	101
8720220	BM	22	77.1	84.4	91.7	84.7	101
8887370	BM	37	64.7	75.5	77.1	77.9	83.6
9053260	BM	26	78.5	79.2	91.8	89.2	83.7
9519250	BM	25	70.4	84.2	102	93.1	92.8
9895210	BM	21	71.8	85.7	93.1	88.1	87
10037320	BM	32	79.4	80.1	94	91.1	94.3
10318380	BM	38	69	85.8	88.9	82.5	88.8
543250	BM	25	73.3	91	101	89.3	88.1
228651	WF	65	64.9	77.6	87.7	83.8	94
1041321	WF	32	66.4	74.5	71.1	65.6	81.2
1391501	WF	50	65.3	77.3	83.9	84.2	75
1505241	WF	24	77.4	90.1	87.3	93.2	105
3080371	WF	37	72.7	80.7	91.3	84.8	97.9
4697341	WF	34	74.7	79.6	85.4	88.3	93.6
5049551	WF	55	84.2	89.6	96.8	90.1	96.1
5219261	WF	26	63.8	72.4	72.4	67.4	74.2
6672461	WF	46	68.3	76.2	76.5	82.1	89.8
7010401	WF	40	64.5	73.9	85.5	81.9	82
8517231	WF	23	74.7	86.6	92.3	88.8	94.8
8968431	WF	43	77.4	77.1	84.2	82.1	98.4
9444231	WF	23	72.3	83.3	92.4	91.5	91.3

Case ID	P	Age	TPL				
			L1	L2	L3	L4	L5
9766331	WF	33	70.3	79.1	99.5	89.8	89.8
474590	WM	59	79.1	86.5	96.5	91.4	94.7
844300	WM	30	75.4	80.9	96.5	83.9	95.4
2446350	WM	35	90.1	94	115	99.4	106
2796360	WM	36	70.7	73.4	83.4	86.7	
3406620	WM	62	75.7	92.8	105	101	102
3996360	WM	36	68.5	71.3	83.9	85.3	
4337270	WM	27	70.2	80.5	96.5	87.4	95.6
5431250	WM	25	83	91.3	109	97.7	106
5816390	WM	39	79.9	87.9	98.1	84.3	95.3
8064380	WM	38	77.9	79.7	92.4	101	95.9
9672360	WM	36	75.8	89.1	93.2	86.6	88.6
10153260	WM	26	75	84.8	106	94	92.1
10412510	WM	51	81.8	99.1	108	90.8	94

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 2: Table indicating the spinous process length (SPL) measurement taken on the CT scans

Case ID	P	Age	SPL				
			L1	L2	L3	L4	L5
175281	BF	28	28.3	29.9	32.5	33.9	29.9
376411	BF	41	32	34.2	37.9	36.1	28.1
696271	BF	27	30.2	31	30.1	25.4	24.5
940381	BF	38	32.1	34.7	38.1	40.4	33.3
1188251	BF	25	25.2	27.4	29.5	27	24.5
1689331	BF	33	33	36.8	34.2	38.2	28
1983451	BF	45	27.5	34.6	35.9	36.3	33.5
2286451	BF	45	31.9	34.5	38.3	36.2	36.3
2622521	BF	52	30.9	33.5	31	25	24.2
3313231	BF	23	34	36.8	38.5	39.6	33.9
4006211	BF	21	31.1	32.5	32.9	28.2	
4811371	BF	37	31.2	33.4	35.6	32.9	30.3
4921271	BF	27	31.7	36.1	36.2	33.7	29.8
5378491	BF	49	33.5	37.9	41	38.3	32.9

Case ID	P	Age	SPL				
			L1	L2	L3	L4	L5
5642231	BF	23	28	30.1	32.3	29.4	21
6309241	BF	24	37.2	38.5	36.5	37.4	34.3
7346221	BF	22	37.2	36.8	34	30	23.5
7479241	BF	24	34.3	38.8	39.9	33.6	28.6
7591291	BF	29	35.2	38.4	40.5	36.1	30.9
7963301	BF	30	32	37.4	38.2	39.7	34.8
8677261	BF	26	24.1	28	31.2	30	26.7
10277341	BF	34	30.1	35	34.5	31.2	24.6
745400	BM	40	30.8	35.3	37.5	35.6	33.4
1224630	BM	63	29.7	33.9	35	33.9	27.5
1751390	BM	39	29.1	37.6	39.5	40.7	31.4
1837250	BM	25	35.8	39.4	34.3	34.8	24.4
2139430	BM	43	31.9	38.2	42.8	42.7	34.7
2336320	BM	32	25.1	27.8	37.9	38.9	33
2583380	BM	38	39	39.2	42.4	34.3	31.8
2838310	BM	31	31.1	35.9	40.6	39.9	31.4
2975380	BM	38	38.8	42.1	43.5	43	37.4
3591250	BM	25	25.6	34.3	37.8	32.3	33.2
3796340	BM	34	35.3	35.7	34.5	31.1	28.2
3819360	BM	36	33.2	34.1	38.6	38.2	36
4274270	BM	27	33.7	39.2	44.3	44.6	36
4421330	BM	33	33.5	35	35.2	31	
4518330	BM	33	34.8	38.2	38.1	36	31.1
4759360	BM	36	33.1	35.7	41.2	38.9	31.5
5114370	BM	37	37.6	40.8	39.8	32.6	26.4
5989270	BM	27	32.2	37.9	40.4	38.5	28.9
6105390	BM	39	40.5	49.3	50.6	47.3	39.6
6426270	BM	27	30.6	34.5	39.7	39.4	33.1
6771200	BM	20	28.9	34.5	35.7	38.9	32
7172230	BM	23	34	38.8	37.6	41.6	33.3
8199370	BM	37	37	38.3	36.9	34.8	29.7
8213390	BM	39	38.5	43.5	40.8	38.3	32.1
8313270	BM	27	38.3	43.9	44.6	44.1	36.9
8720220	BM	22	36.5	39.5	43.1	41.8	37.3
8887370	BM	37	31.1	34.8	37.9	33.5	28.6
9053260	BM	26	31.8	35.7	37.3	35.6	31.3
9519250	BM	25	29.9	34.3	33.8	30.9	23.5
9895210	BM	21	32.6	35.4	34.3	35.3	24.8

Case ID	P	Age	SPL				
			L1	L2	L3	L4	L5
10037320	BM	32	31.4	35.7	39.7	35.1	31.1
10318380	BM	38	36.7	40.9	42.2	37.5	34
543250	BM	25	30.7	35.6	36.3	33.7	29.3
228651	WF	65	26.9	33.1	32.4	31.8	32.2
1041321	WF	32	35.7	36.6	39.3	38.3	31.8
1391501	WF	50	34.6	39.9	39.4	40.2	34.4
1505241	WF	24	31.7	37.9	40.3	30.6	22.8
3080371	WF	37	34.3	32.5	34.8	30.3	23.2
4697341	WF	34	31.7	33.4	35.6	32.3	24.6
5049551	WF	55	34.7	40	41	37.3	34.6
5219261	WF	26	31.2	34.7	36.1	36.1	27.7
6672461	WF	46	35.8	39.5	35.8	31.4	26.8
7010401	WF	40	30.9	36.6	38.2	36.4	30.2
8517231	WF	23	30.8	34.7	38.3	38.1	35.5
8968431	WF	43	37	41.4	44.4	39.3	34.2
9444231	WF	23	29.5	34.9	35.6	34.8	34.7
9766331	WF	33	32.3	33.8	35.6	34.2	28.4
474590	WM	59	35.6	42	44.1	42.5	35.4
844300	WM	30	30.7	35.2	31.7	32.8	26.5
2446350	WM	35	35.8	46.6	42.9	45.7	34.7
2796360	WM	36	36	41.7	41.9	39.9	33.3
3406620	WM	62	38	44.7	48.5	41.2	36.1
3996360	WM	36	37.4	40.4	43.7	42.9	35.5
4337270	WM	27	33.1	37.8	38.2	34.4	32.5
5431250	WM	25	38.4	41.4	37.5	34.7	30.9
5816390	WM	39	35.3	38.6	38.9	36.6	23
8064380	WM	38	35	38.7	41.2	33.3	28.7
9672360	WM	36	35.2	38.9	41.2	37.4	30.8
10153260	WM	26	32.5	36	39.1	42.3	34.5
10412510	WM	51	41.2	45.9	47.9	45.7	41.3

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 3: Table indicating the pedicle height (PDH) measurement taken on the CT scans

Case ID	P	Age	PDH				
			L1	L2	L3	L4	L5
175281	BF	28	16.1	16.6	16.2	15.3	12.6
376411	BF	41	18	15.4	17.6	15.9	15.5
696271	BF	27	17.9	16.7	16.3	15.7	14
940381	BF	38	16.9	16.2	15	15.1	15.9
1188251	BF	25	15	14.6	15.4	14.4	13
1689331	BF	33	16.6	17.1	15.1	14.5	13.7
1983451	BF	45	15.3	13.5	13.6	13.5	12.9
2286451	BF	45	15	14.7	15.8	13.3	12.3
2622521	BF	52	16.9	16.9	15.8	14.6	12.6
3313231	BF	23	15.4	14	14.5	13.2	11.3
4006211	BF	21	14.8	13.5	14.1	13.1	
4811371	BF	37	15.6	16.2	16.1	15.2	14.6
4921271	BF	27	16.5	14.9	15	14.3	12.6
5378491	BF	49	16.4	15.6	15.3	14.5	14.7
5642231	BF	23	14.5	14.1	14.8	13.8	12.8
6309241	BF	24	18.3	17.4	19.3	17.8	15.4
7346221	BF	22	15.7	16.8	15.2	16.4	14.9
7479241	BF	24	17.6	18.9	16.9	15.3	12.3
7591291	BF	29	16.6	15	16.6	15.1	13.7
7963301	BF	30	18	17.7	17.7	15	13
8677261	BF	26	14.7	15.3	14.6	15.2	12.7
10277341	BF	34	17.6	17.8	18.3	16.5	13.6
745400	BM	40	17.7	18.9	16.9	15.3	15.9
1224630	BM	63	16.1	14.1	15.2	14.1	14.3
1751390	BM	39	16.2	18.5	17.9	14.3	14.2
1837250	BM	25	18	18.4	13.9	16.2	14.8
2139430	BM	43	16.8	15.2	16.6	17.5	12.8
2336320	BM	32	14.8	17.5	17.1	19	19.8
2583380	BM	38	19.2	17.9	16.3	16.8	12.7
2838310	BM	31	18	18.2	18.4	18.1	14.8
2975380	BM	38	18.8	18.7	18.1	19	16.8
3591250	BM	25	16.3	18.9	19	19	16.7
3796340	BM	34	17.6	17.5	17.9	17.1	15.7
3819360	BM	36	18.2	16.2	17.1	14.1	12
4274270	BM	27	18.4	17.6	19.3	18.6	16.2

Case ID	P	Age	PDH				
			L1	L2	L3	L4	L5
4421330	BM	33	18.2	17.6	16.1	14	
4518330	BM	33	16.1	16.1	17.2	15.7	13.5
4759360	BM	36	18.7	18.9	18.7	17.3	14.3
5114370	BM	37	16.1	16.9	17.7	16.5	15.1
5989270	BM	27	17.6	17.4	17.7	15.8	14.9
6105390	BM	39	17	19.3	16.1	19.6	18.3
6426270	BM	27	17.8	17.9	17.7	17.5	13.8
6771200	BM	20	18.4	18.2	17.1	14.9	15.7
7172230	BM	23	18.4	18.4	17.1	15.4	12.8
8199370	BM	37	19.2	20.8	18.4	17.2	16.6
8213390	BM	39	18.9	19.4	20.2	17.7	15.1
8313270	BM	27	19.7	19.5	20.5	19.4	18.2
8720220	BM	22	17.6	17.2	18.2	17.2	14.8
8887370	BM	37	18.6	17.1	17.7	17.7	15
9053260	BM	26	19.1	17.7	18	16.9	15.8
9519250	BM	25	16.7	16.9	18.7	16.3	14.3
9895210	BM	21	19.5	18.8	17.7	17.5	15.1
10037320	BM	32	20.2	20.2	19.7	18.8	18.7
10318380	BM	38	21.7	20.6	20.9	19.5	17.3
543250	BM	25	16.2	18.6	18.6	17.7	14.5
228651	WF	65	17.6	15.2	16.7	14.8	13.5
1041321	WF	32	14.7	16.5	16.8	15.8	13.1
1391501	WF	50	16.1	17.9	16	15.5	11
1505241	WF	24	15.2	14.3	13.5	12	14.4
3080371	WF	37	15.6	15.4	13.4	12.9	11.1
4697341	WF	34	16	15.2	16.9	14.6	14.7
5049551	WF	55	19.5	18.7	21.1	19	16.7
5219261	WF	26	17.5	17.3	17.9	15.3	14.2
6672461	WF	46	13.5	14.3	14.9	14.4	14.3
7010401	WF	40	16.5	15	14.1	13.8	14
8517231	WF	23	17.9	16.2	16.2	18	15.2
8968431	WF	43	16.3	16.9	16.3	16.6	15.5
9444231	WF	23	14.4	13.9	14.4	13.7	13
9766331	WF	33	17.3	16.8	16.7	16.9	14.7
474590	WM	59	15.9	16.3	16.2	13.8	14.6
844300	WM	30	17	16.9	18	16.3	14.6
2446350	WM	35	15.7	12.3	14.7	16.2	15.7
2796360	WM	36	17.8	17.2	17.1	17	13.8

Case ID	P	Age	PDH				
			L1	L2	L3	L4	L5
3406620	WM	62	16.5	17.5	16	14.9	14.2
3996360	WM	36	17.5	18.6	17.8	17.9	13.7
4337270	WM	27	18.6	18	16	17.5	14.2
5431250	WM	25	20.3	19.6	17.8	17	15.4
5816390	WM	39	19.2	18	18.8	17.1	16.1
8064380	WM	38	18.7	21.3	20.3	19.3	17.6
9672360	WM	36	16	16.6	17.3	17.3	15.4
10153260	WM	26	17.9	17.8	18.5	17.2	12.5
10412510	WM	51	20.6	20.1	22.5	17.7	14.6

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 4: Table indicating the lateral pedicle diameter (PDDL) measured on the CT scans

Case ID	P	Age	PDDL				
			L1	L2	L3	L4	L5
175281	BF	28	10.45	9.8	9.65	12.25	13.1
376411	BF	41	7.8	8.05	10.6	12.85	16.1
696271	BF	27	9.35	9.75	10.2	12.35	15.15
940381	BF	38	8.5	10.2	12.4	14.05	16.05
1188251	BF	25	8.85	11.2	12.25	13.85	17.5
1689331	BF	33	9.45	8.85	10	11.05	14.35
1983451	BF	45	7.5	6.85	7.75	10.25	13.2
2286451	BF	45	10.1	11.05	11.95	11.5	12.15
2622521	BF	52	10.55	11.9	11.15	11.25	16.45
3313231	BF	23	7.5	7.75	10.1	10.65	14.1
4006211	BF	21	8.3	9.25	10.65	14.6	
4811371	BF	37	9.75	11.1	13.2	16.05	19.15
4921271	BF	27	8.15	9.85	10.6	11.7	15
5378491	BF	49	10.3	10.8	12.6	14.7	17.85
5642231	BF	23	9.5	10.05	11.1	13.2	15.7
6309241	BF	24	10.85	10.45	11.15	12.25	18.8
7346221	BF	22	10.7	10.1	10.2	12.1	13.2
7479241	BF	24	8.65	9.8	11.85	12.5	15.85
7591291	BF	29	10	8.85	11.35	13.8	17.9
7963301	BF	30	5.05	5.75	8.1	9.55	16.6

Case ID	P	Age	PDDL				
			L1	L2	L3	L4	L5
8677261	BF	26	6.45	7.1	9.05	11.05	12.55
10277341	BF	34	13.25	11.9	13.3	15	18.4
745400	BM	40	8.35	9.05	10.9	12.85	17.6
1224630	BM	63	8.3	9.45	11.1	13.3	15.2
1751390	BM	39	10.1	10.1	11.05	15	16.45
1837250	BM	25	6.85	7.5	9.3	9.65	10.65
2139430	BM	43	9.3	10.8	12.55	14.4	17.45
2336320	BM	32	11.15	11.15	11.75	14.45	17.45
2583380	BM	38	10.25	11.7	12.35	13.3	15.85
2838310	BM	31	13.4	11.35	13.05	15.1	16.65
2975380	BM	38	12.15	12.75	14.2	16.55	19.8
3591250	BM	25	12.55	14.15	14.4	17.25	22.45
3796340	BM	34	13.9	12.55	13.7	14.35	21.75
3819360	BM	36	10.95	10.65	10.9	12.95	16.5
4274270	BM	27	10.4	9.75	11.15	17.35	19.7
4421330	BM	33	11.45	11.95	15.5	18.1	
4518330	BM	33	10.65	10.7	12.35	14.6	16.2
4759360	BM	36	11.45	10.05	12.25	14.35	16.55
5114370	BM	37	10.3	10.7	12.2	13.3	17.55
5989270	BM	27	8.9	7.35	9.85	11.7	14.5
6105390	BM	39	12.5	13.8	14.3	15	16.45
6426270	BM	27	9.1	9	12	14.25	18.15
6771200	BM	20	9.9	10.2	11.7	14.05	17.45
7172230	BM	23	12.45	11.85	12.05	13.5	15.5
8199370	BM	37	10.5	12.45	12.95	16.3	19.5
8213390	BM	39	11.6	10.6	13.85	13.95	15.8
8313270	BM	27	11.65	11.95	13.05	14.8	17.4
8720220	BM	22	10	10.05	11.4	12.75	18.9
8887370	BM	37	11	11.05	12.6	13.2	19.6
9053260	BM	26	9.3	9.55	10.6	11.75	14.2
9519250	BM	25	11.85	11.9	13.8	16	17.3
9895210	BM	21	10.25	10.35	12.35	13.5	17.25
10037320	BM	32	12.45	11.85	13.25	15.6	21.7
10318380	BM	38	11.7	12.3	14.35	15.45	17.35
543250	BM	25	10.15	9.9	11.15	13.7	18.5
228651	WF	65	6.1	7.4	6.8	8	14.35
1041321	WF	32	8.5	9.85	10.6	13.55	14.85
1391501	WF	50	6.55	7.05	8.45	10.2	10.25

Case ID	P	Age	PDDL				
			L1	L2	L3	L4	L5
1505241	WF	24	7.5	9.4	11.7	13.65	16.35
3080371	WF	37	8.35	9.55	12.3	13.25	16.85
4697341	WF	34	5.2	5.65	7.2	9.95	13.45
5049551	WF	55	9.25	10.1	13.05	15.05	20.2
5219261	WF	26	5.7	7.45	8.8	10.15	13.7
6672461	WF	46	7.45	7.1	8.75	10.9	15.35
7010401	WF	40	6.4	7	7.55	9.85	13.65
8517231	WF	23	9.5	10.05	11.35	13.2	16.8
8968431	WF	43	8.55	8	10.95	12.2	17.8
9444231	WF	23	7.75	6.45	9.25	11.4	14.45
9766331	WF	33	8.35	9.15	12	13.55	18.3
474590	WM	59	7.85	9.5	10.1	13.5	17.85
844300	WM	30	7.85	9.1	11.4	13.25	16.7
2446350	WM	35	11.3	13	14.8	17.35	20
2796360	WM	36	7.7	8.6	11.25	13.8	16.6
3406620	WM	62	8.9	9.3	10.7	14.45	18.05
3996360	WM	36	7.65	8.85	10.95	13.2	17
4337270	WM	27	9.15	10.1	12.65	13.6	17.2
5431250	WM	25	9.85	12.25	13.55	13.8	19.9
5816390	WM	39	10.2	11.65	13.15	15.5	19.1
8064380	WM	38	7.9	8.5	10.35	13.55	14.7
9672360	WM	36	9.35	10.55	12.25	13.7	18.4
10153260	WM	26	9.35	9.55	9.9		14.5
10412510	WM	51	12.3	13.15	13.9	15.4	21.75

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 5: Table indicating the AP diameter of the spinal canal (SCDAP) measured on the CT scans

Case ID	P	Age	SCDAP				
			L1	L2	L3	L4	L5
175281	BF	28	16	14.2	13.6	15.1	14.8
376411	BF	41	16.7	15.6	15.2	13.6	15.7
696271	BF	27	21.7		19.7	22.9	20
940381	BF	38	16.2	16.5	13.1	15.7	16.5
1188251	BF	25	16.6	15.5	15	13.8	14.8
1689331	BF	33	17.1	14.8	15.7	14.1	16.4
1983451	BF	45	15.9	14.4	13.1	12.1	11.7
2286451	BF	45	15.6	14.8	14.6	14.8	16
2622521	BF	52	16.8	16.6	18.2	18.2	16.5
3313231	BF	23	14.7	14.3	13.1	12.4	12.4
4006211	BF	21	13.5	12.9	12.9	14.6	
4811371	BF	37	13.7	13.1	12.5	11.6	11.9
4921271	BF	27	17.4	15.4	16.4	15.9	16.3
5378491	BF	49	12.7	13	12.7	12.9	13.6
5642231	BF	23	12.8	13.1	12.1	14.7	16.3
6309241	BF	24	15.6	14.8	15.9	16.2	18.9
7346221	BF	22	13.5	12.2	13	13.3	14.4
7479241	BF	24	16.5	16.2	16	17.2	20.5
7591291	BF	29	13.9	11.8	13.6	12.6	12.4
7963301	BF	30	15.9	14.3	13.3	13.7	15.3
8677261	BF	26	14.6	13.8	13.3	12.5	13.6
10277341	BF	34	12.9	12.1	12.4	14.6	15.4
745400	BM	40	17.9	15.2	15.5	12.7	14
1224630	BM	63	16	17.3	16.1	16.6	17.3
1751390	BM	39	19.1	19	16.2	16.2	18.7
1837250	BM	25	13.1	13.1	13.6	11.5	12.3
2139430	BM	43	15.6	14.2	12.8	13.1	17.2
2336320	BM	32	16.4	15.2	14.8	15.4	16.2
2583380	BM	38	14.8	16.8	14.1	14.1	18.6
2838310	BM	31	14.2	15.6	14.2	14.3	17.5
2975380	BM	38	14	15.7	16.7	16.1	16.6
3591250	BM	25	17.3	16.8	17	18.3	18.5
3796340	BM	34	13.8	14.2	13.1	13	12.3
3819360	BM	36	15.5	15.2	14.2	13.1	14.5

Case ID	P	Age	SCDAP				
			L1	L2	L3	L4	L5
4274270	BM	27	16.3	16.1	14	14.5	14.7
4421330	BM	33	15.9	15.8	18.3	21	
4518330	BM	33	12.9	13.3	12.7	14.9	15.2
4759360	BM	36	19.2	18.2	17.5	16.3	18.3
5114370	BM	37	15.7	16.2	16.2	17.3	19.5
5989270	BM	27	16.8	15.6	13.9	13.8	14.2
6105390	BM	39	13.2	15.1	14.3	17.8	18.6
6426270	BM	27	16.3	14.7	13.9	13.7	14.4
6771200	BM	20	13.2	12.3	11.6	13.5	13.6
7172230	BM	23	17.1	15.4	15.1	17.1	19.7
8199370	BM	37	13.9	13.9	16.5	20.2	20.5
8213390	BM	39	13.2	11.6	11.9	11.9	15.8
8313270	BM	27	14.8	13.8	14.3	15	16.4
8720220	BM	22	17.6	15.2	14.4	15.7	17.6
8887370	BM	37	14	12.6	11	12.4	13.7
9053260	BM	26	13.4	13	11.7	13.2	13.1
9519250	BM	25	16	16.1	15.8	14.9	17.9
9895210	BM	21	16.3	15.7	16.5	16.2	17
10037320	BM	32	15.5	15.8	14.8	14.8	15.5
10318380	BM	38	15.5	15.5	14.4	15.5	16.6
543250	BM	25	18.5		20.2	21.9	17.9
228651	WF	65	19.2	19.3	22	19.9	20
1041321	WF	32	16.2	13.9	13	12.2	12.5
1391501	WF	50	17.1	17.8	15.8	14.9	15
1505241	WF	24	17.7	16.3	19.2	19	18.4
3080371	WF	37	13	12.9	14.3	14.7	16.1
4697341	WF	34	15.9	16.8	14.5	17.6	17.1
5049551	WF	55	19.2	17.5	18.8	16.8	19.4
5219261	WF	26	17.8	15.9	15.2	14.9	15.2
6672461	WF	46	16.4	17.9	17.2	18.5	19.9
7010401	WF	40	16	14.7	15.2	13.9	13.5
8517231	WF	23	18.4	18.3	16.6	16.6	17.3
8968431	WF	43	16.2	12.8	13.1	13.1	12
9444231	WF	23	18.4	18.9	18.4	16.7	17.3
9766331	WF	33	17.4	17	18.1	20.9	18.1
474590	WM	59	15.7	14.4	12	13.5	13.7
844300	WM	30	14.1	14.5	15.6	13	15.3
2446350	WM	35	15	14.1	14.4	13.7	17.7

Case ID	P	Age	SCDAP				
			L1	L2	L3	L4	L5
2796360	WM	36	14.8	13.5	13.9	11.1	14.4
3406620	WM	62	15.4		16.1	17.9	18.3
3996360	WM	36	16	14	12	11.8	15.5
4337270	WM	27	15.4	13.9	14.5	16.7	19.7
5431250	WM	25	14.9	14.9	17.4	19.5	18.5
5816390	WM	39	15.3	13.6	12.4	13.1	15.6
8064380	WM	38	14.9	14.3	14.1	15.7	16.8
9672360	WM	36	16.7	14.5	13.6	15.8	19.2
10153260	WM	26	16	14.4	13.1	12.6	14.4
10412510	WM	51	14.8	14.6	12.2	12.4	14.8

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 6: Table indicating the lateral spinal canal diameter (SCDL) measured on the CT scans

Case ID	P	Age	SCDL				
			L1	L2	L3	L4	L5
175281	BF	28	20.5	20.2	22.4	21.7	26.8
376411	BF	41	19.3	19.7	20.2	25.8	26.1
696271	BF	27	19.7	20.1	23.9	26.4	27.9
940381	BF	38	18.7	21.2	19.8	21.5	22
1188251	BF	25	18.5	19.4	22.4	24.3	25.6
1689331	BF	33	21.6	20.4	23.4	25.7	31.2
1983451	BF	45	19.2	17.8	18.2	20.1	21.6
2286451	BF	45	20.6	20.1	20.3	24.1	31.1
2622521	BF	52	24.6	25.2	26	29.6	31.1
3313231	BF	23	21.4	21.1	22.1	22.5	25.1
4006211	BF	21	21.7	21.2	21.1	24.3	
4811371	BF	37	21	20.6	21	21.8	29.4
4921271	BF	27	22.2	21.4	23.1	22.6	27
5378491	BF	49	19.8	19.6	22.2	22.2	22.7
5642231	BF	23	18.2	16.8	20	21.2	26.3
6309241	BF	24	21.8	22.4	24.5	22.9	24
7346221	BF	22	18.7	17.5	17.6	17.8	19.8
7479241	BF	24	22.9	21.9	22.2	20.6	23.9

Case ID	P	Age	SCDL				
			L1	L2	L3	L4	L5
7591291	BF	29	18	19	19.2	21.4	27
7963301	BF	30	21.3	21.7	21.9	21.7	24.9
8677261	BF	26	21.4	20.6	19.7	23.8	24.9
10277341	BF	34	16.8	19	22.8	22.8	27.3
745400	BM	40	20.4	20.4	24.5	25.4	27.2
1224630	BM	63	20.6	19.5	22.1	23.4	25.9
1751390	BM	39	24.6	24.6	25.3	27.1	33.8
1837250	BM	25	22.9	20.7	20.7	22.7	22.7
2139430	BM	43	22.8	22.5	21.3	22.6	25.2
2336320	BM	32	21.7	24.5	25.6	29	33.2
2583380	BM	38	21.7	23.3	25.5	26.8	33.8
2838310	BM	31	20.2	21.4	21.5	21.1	24.9
2975380	BM	38	23.4	19.8	20.6	24.4	24.2
3591250	BM	25	21.3	22.6	26.4	25.9	31.1
3796340	BM	34	20.3	20.7	20.7	23.2	25.6
3819360	BM	36	24.8	23.1	24.7	26.4	30.9
4274270	BM	27	21.6	21.8	22.8	22.8	22.1
4421330	BM	33	27.3	26.7	27.2	32.3	
4518330	BM	33	21.1	19.7	22.6	22.8	26.8
4759360	BM	36	22.2	23.8	23.4	24.6	24.2
5114370	BM	37	20.5	22	24.3	26.8	27.1
5989270	BM	27	22.3	21.3	22.3	28.3	29.6
6105390	BM	39	21.4	24.8	23.3	30	31
6426270	BM	27	25.6	24.2	24.5	27.3	25.7
6771200	BM	20	19.7	21.6	22.2	21.5	22.1
7172230	BM	23	25.5	23.6	28.2	29.6	33.7
8199370	BM	37	23.1	24.7	28.6	28.6	29.2
8213390	BM	39	21.9	20.9	26.1	26.4	29.9
8313270	BM	27	22.3	21.2	20.6	22.6	25.7
8720220	BM	22	24.8	25	26.5	30.4	28.5
8887370	BM	37	19.1	20.4	19.9	20.1	24.7
9053260	BM	26	19	20.7	21.4	25.4	28
9519250	BM	25	19.1	19.3	22.4	23.3	26.6
9895210	BM	21	20.4	21.5	23.1	23.5	25.9
10037320	BM	32	21.1	20.7	22.8	28.7	28.4
10318380	BM	38	21.8	23.2	23.1	26.5	29.8
543250	BM	25	25.6	24.8	25.7	32.5	34.2
228651	WF	65	24.1	24.8	30.1	29.3	34.4

Case ID	P	Age	SCDL				
			L1	L2	L3	L4	L5
1041321	WF	32	19.7	20.8	21.8	19.1	20.7
1391501	WF	50	21.9	21.6	21.6	21.9	24
1505241	WF	24	22.1	22.1	24	32.8	32.9
3080371	WF	37	20.8	23	22.6	24.4	29
4697341	WF	34	22.3	22	22.8	28	28.5
5049551	WF	55	21.5	22.4	22.4	25.5	27.4
5219261	WF	26	22.7	22	22	25.4	25.1
6672461	WF	46	21.3	21.4	24.7	25.8	32
7010401	WF	40	22.9	22.2	21.2	22.2	24.9
8517231	WF	23	23.7	23.9	25.2	26.6	26.9
8968431	WF	43	21.5	20.4	22.6	22.9	24.9
9444231	WF	23	22.5	23.8	22.5	23.3	25
9766331	WF	33	23.5	23.1	24.4	23.3	26.4
474590	WM	59	24.3	23.8	24.7	26.1	25.2
844300	WM	30	20.8	21.5	24.5	22.6	26.8
2446350	WM	35	26.2	25.2	24.5	27.4	28.5
2796360	WM	36	21.8	21.3	23.5	24	25.4
3406620	WM	62	24.5	24.1	25.2	26.3	29.6
3996360	WM	36	23.1	24.3	22.8	25.2	27.2
4337270	WM	27	23	22.4	23.9	24.5	26.3
5431250	WM	25	24.2	22.6	26.3	27.8	31.5
5816390	WM	39	23.5	23.7	25.3	24.1	26.6
8064380	WM	38	22.7	22.3	23.4	25	32.9
9672360	WM	36	21.5	19.5	19.4	21.9	27.1
10153260	WM	26	22.6	22.3	24.8	24.6	27
10412510	WM	51	22.6	21.6	20.5	21.8	26.1

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

APPENDIX A.4: RAW DATA FOR CT SCANS – VERTEBRAL BODY MEASUREMENTS

Table 1: Table indicating the maximum lateral vertebral body diameter (VDMaxL) measurements taken on the CT scans

Case ID	P	Age	VDMaxL				
			L1	L2	L3	L4	L5
175281	BF	28	35.9	38.4	41.3	43.3	44.9
376411	BF	41	38.5	39.2	40.3	44.1	46.4
696271	BF	27	36.5	40.3	44.3	44.6	46.2
940381	BF	38	38.2	42.3	45	49	53.4
1188251	BF	25	40.7	42.4	45	47.7	50.6
1689331	BF	33	39.6	43.2	45.3	46.9	50.4
1983451	BF	45	36	40.5	42.2	44.4	46.1
2286451	BF	45	40.5	43.6	45.9	49.4	48.2
2622521	BF	52	46.2	46.6	46.9	51.6	57.3
3313231	BF	23	39.4	40.6	40.5	42.7	46.1
4006211	BF	21	38.5	42.4	43.7	45.4	
4811371	BF	37	42.7	45.6	49.8	51.7	53.5
4921271	BF	27	38.6	42.8	45	45.7	46.9
5378491	BF	49	45.4	48.4	51.4	55.9	55.5
5642231	BF	23	35.4	36.5	38.9	41.7	42.2
6309241	BF	24	44.4	47.4	50.6	50.1	50.4
7346221	BF	22	36	39.6	41.6	42.9	44
7479241	BF	24	38.6	41.7	42.7	44.2	47.2
7591291	BF	29	40.1	42.2	42.6	45.8	47.4
7963301	BF	30	39.4	40.3	41.2	45	44.9
8677261	BF	26	35.3	37.4	38.2	43.3	43.3
10277341	BF	34	48.3	48.6	51.4	53.6	56
745400	BM	40	44	45.8	49.4	51.2	51.9
1224630	BM	63	39.6	44.2	46.3	47.8	53.1
1751390	BM	39	47.7	50.9	51.8	55.2	57.2
1837250	BM	25	41.9	44.8	44.8	46.6	47.8
2139430	BM	43	45.6	46.7	49.4	50.2	52.8
2336320	BM	32	44.5	46.9	49.7	51.7	49.9
2583380	BM	38	50.9	54	57.5	57.8	57.9
2838310	BM	31	47.1	49	53.5	52.6	58.4

Case ID	P	Age	VDMaxL				
			L1	L2	L3	L4	L5
2975380	BM	38	44.8	48.2	53	51.6	54.8
3591250	BM	25	53.5	54.8	56.3	58.9	61.4
3796340	BM	34	48.9	50.8	52.8	55.3	63.4
3819360	BM	36	47.9	50.3	53.2	52.5	59
4274270	BM	27	46.7	47.4	50	51.3	56.3
4421330	BM	33	49.1	51.4	53.1	55.9	
4518330	BM	33	43.4	47.8	49.9	53	55.2
4759360	BM	36	44.9	47.5	48.7	50.5	53.6
5114370	BM	37	45.4	47.8	47.6	48.9	53.2
5989270	BM	27	40.5	43.4	45.1	47.3	46.3
6105390	BM	39	49.2	53.1	50.3	52.1	56.3
6426270	BM	27	47	47.6	50.2	53	53
6771200	BM	20	41	43.3	45.6	47.7	48.7
7172230	BM	23	44.7	46.6	49.4	51.6	53.4
8199370	BM	37	48	51.7	53.8	55.6	57.8
8213390	BM	39	46.7	46.6	51.1	52.1	56
8313270	BM	27	49	50.7	52.2	52.8	52.7
8720220	BM	22	46.4	48.3	49.4	52.1	55.4
8887370	BM	37	43.8	46.5	49.2	51.3	53.4
9053260	BM	26	44.7	47	47.7	49.2	51.4
9519250	BM	25	42.6	46.2	48.1	48.8	52.8
9895210	BM	21	45.7	48.1	48.1	51.6	48.5
10037320	BM	32	47.8	46.8	49.8	55.1	57.3
10318380	BM	38	45.1	49.7	52.7	57	56.6
543250	BM	25	44.8	47.5	52.2	53.1	53.5
228651	WF	65	42.4	46	48.1	49.6	55.6
1041321	WF	32	40.6	44.1	44.4	46.8	48
1391501	WF	50	40.3	45	46	52.7	55.9
1505241	WF	24	40.5	41.9	41.2	46.2	45.1
3080371	WF	37	37.2	38.7	42.8	44.7	46
4697341	WF	34	37.4	40.4	41.7	45	45.9
5049551	WF	55	43.3	46.5	47.2	49.5	56.2
5219261	WF	26	37.4	39.9	43.4	45.5	46
6672461	WF	46	36.7	43.6	43	42.4	44.7
7010401	WF	40	38.5	39.3	40	44	45.9
8517231	WF	23	40.8	44.3	46.6	48.2	49.1
8968431	WF	43	40.8	44.4	46.7	49.2	49.7
9444231	WF	23	39.5	39.2	40.6	43.3	46.6

Case ID	P	Age	VDMaxL				
			L1	L2	L3	L4	L5
9766331	WF	33	40.1	42.4	44.3	45.9	50.2
474590	WM	59	46.1	46.1	51.1	52.7	56.9
844300	WM	30	44.3	46.2	48.7	49	52.2
2446350	WM	35	50.5	54.7	56.2	59.4	59.1
2796360	WM	36	45.7	47.6	51.8	52.1	51.7
3406620	WM	62	51.5	54.1	54.8	53.7	59.2
3996360	WM	36	45.4	47.9	48	52.2	52.7
4337270	WM	27	40.2	42.6	46.3	46	50.2
5431250	WM	25	47.3	49.1	50.2	51.8	58.5
5816390	WM	39	47.3	49.1	53.4	53.4	53.9
8064380	WM	38	43.6	44.7	47	49.7	50.4
9672360	WM	36	45.9	44.8	47.9	51.5	53.8
10153260	WM	26	44.1	47.1	46.9	48.7	51.8
10412510	WM	51	52.3	55.8	57	58.9	61.7

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 2: Table indicating the minimum lateral vertebral body diameter (VDMinL) measurement taken on the CT scans

Case ID	P	Age	VDMinL				
			L1	L2	L3	L4	L5
175281	BF	28	34.5	34.7	38.6	40.2	42
376411	BF	41	33.9	35.7	36.3	40.4	40.1
696271	BF	27	33.2	35.1	38.7	42.5	41.8
940381	BF	38	36.5	38.2	40.3	43.8	47.6
1188251	BF	25	36	37.2	41.9	45	43.8
1689331	BF	33	36	39	41.7	45.5	46.2
1983451	BF	45	33.3	35.5	36.7	37.5	36.5
2286451	BF	45	37.4	38.6	40.9	43.9	40.9
2622521	BF	52	41.3	41.5	44.2	45.9	49.1
3313231	BF	23	34.2	34.9	36.4	36.1	36
4006211	BF	21	36.4	38	39.2	37.3	
4811371	BF	37	40.1	42.1	43.9	47.1	46.8
4921271	BF	27	34.6	36.9	37.4	38.6	33.8

Case ID	P	Age	VDMinL				
			L1	L2	L3	L4	L5
5378491	BF	49	41	43.7	45.3	49.8	45.2
5642231	BF	23	33.7	33.3	33.4	35.4	33.8
6309241	BF	24	41.7	42	43.9	45.2	38.8
7346221	BF	22	33.1	35.7	37.3	38.7	38.8
7479241	BF	24	34.6	36.7	37.7	40.6	38.1
7591291	BF	29	36	35.7	38.3	41.6	40.8
7963301	BF	30	34.5	35	36.5	39.4	39.4
8677261	BF	26	33.8	34.6	36.9	37.8	36.4
10277341	BF	34	44.3	45.9	46.7	47.6	49.7
745400	BM	40	37.9	37.6	40.9	44.1	40.7
1224630	BM	63	35.8	36.8	40.8	40.4	43.6
1751390	BM	39	43.1	45	46	47.2	48.1
1837250	BM	25	35.7	34	37.4	38.2	40.2
2139430	BM	43	39.9	40.9	42.8	41.9	45
2336320	BM	32	41.8	42	45.3	48.4	44.6
2583380	BM	38	44.4	49.2	50.6	50.2	47.6
2838310	BM	31	42.3	44	46.2	48.8	47.5
2975380	BM	38	40.8	42.8	46.8	48.6	48.8
3591250	BM	25	48.2	49.7	50.8	52.3	49.7
3796340	BM	34	44.7	44.2	46.8	49.2	52.9
3819360	BM	36	45.7	46.7	46.9	50.5	47.7
4274270	BM	27	40	40.7	43.1	47.6	50.3
4421330	BM	33	47.9	48.3	49.6	47.1	
4518330	BM	33	39.7	39.7	41.9	44.2	45.3
4759360	BM	36	40.6	41	42.5	44.2	43.7
5114370	BM	37	42.4	42.1	41.9	44.1	46.1
5989270	BM	27	37.9	39.3	42.3	41.6	40.5
6105390	BM	39	46	48.3	44.7	45.1	51.8
6426270	BM	27	40.1	42.2	44.4	46.3	43.4
6771200	BM	20	39	39.1	41.2	43.8	42.7
7172230	BM	23	42.4	44.8	45.4	45.6	45.4
8199370	BM	37	45.1	47.2	49	52.2	49.1
8213390	BM	39	40.2	42.8	43.7	46.6	43.8
8313270	BM	27	41.9	44.7	45.1	46.7	44.2
8720220	BM	22	41.1	43.7	45.7	47.9	49.9
8887370	BM	37	39.5	43	45.4	47	43.5
9053260	BM	26	41.4	41.9	42.4	43.4	44.4
9519250	BM	25	40.5	41.7	44.6	45.7	46.6

Case ID	P	Age	VDMinL				
			L1	L2	L3	L4	L5
9895210	BM	21	41.8	42.9	42.5	44.4	40.9
10037320	BM	32	43.4	43	43.7	48.6	47.6
10318380	BM	38	42.3	44.2	46.4	47.3	42.9
543250	BM	25	42.5	43.2	46.3	47.1	47.6
228651	WF	65	38.4	40.9	44.2	47.2	47.2
1041321	WF	32	36.3	39	39.9	39.8	38.4
1391501	WF	50	33.4	35.5	37.3	37.6	41.1
1505241	WF	24	36.7	35.3	37.4	41.6	39.5
3080371	WF	37	33.3	35	37.8	39.6	36.9
4697341	WF	34	34.1	34	36	37.9	38.7
5049551	WF	55	41	42.8	45.7	46.9	43.2
5219261	WF	26	33.8	35.4	37.6	36.5	36.6
6672461	WF	46	32.8	35.9	36	37	38.6
7010401	WF	40	33.8	33.2	35.8	38.5	37.3
8517231	WF	23	37.1	39.8	41	42.2	41.7
8968431	WF	43	36.9	38.3	42.2	45.5	43
9444231	WF	23	33.7	31	35.4	35.4	36.7
9766331	WF	33	34.4	37.6	40.3	41.4	43
474590	WM	59	40.5	41.4	43.8	46.7	45.3
844300	WM	30	40	40.9	42.5	43.7	41.5
2446350	WM	35	42.6	43.2	44.7	49.7	48.3
2796360	WM	36	40.2	43.7	45.3	45.3	44.3
3406620	WM	62	42.8	43.5	46.8	48.6	49.7
3996360	WM	36	39.7	42.2	44.1	44.6	43.5
4337270	WM	27	35.1	36	40.6	41.7	40.2
5431250	WM	25	44	44.2	45.2	47.5	46.5
5816390	WM	39	39.6	43	44.2	43.7	40.6
8064380	WM	38	36.5	38.2	41	42.2	44.1
9672360	WM	36	39.1	39.6	41.6	43.2	42.7
10153260	WM	26	39.6	40.3	39.2	42.3	42.3
10412510	WM	51	49.7	49.8	51.3	50.2	47.8

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 3: Table indicating the maximum AP vertebral body diameter (VDMaxAP) measurement taken on the CT scans

Case ID	P	Age	VDMaxAP				
			L1	L2	L3	L4	L5
175281	BF	28	26.6	29.1	30.9	31.4	33.2
376411	BF	41	26.3	28.3	29.2	32.4	34.3
696271	BF	27	29.1	31.9	33.5	32.9	32.2
940381	BF	38	27.7	30.4	30.7	33.5	32.7
1188251	BF	25	25.4	27.1	28.5	31	31.5
1689331	BF	33	26.6	29.2	31.4	32.2	33.5
1983451	BF	45	27.1	27.6	29.7	31.1	32.6
2286451	BF	45	29.6	32.4	34.1	35.2	35.9
2622521	BF	52	30.4	31.1	33.5	35.8	39.7
3313231	BF	23	28.1	31.1	31.1	34.1	34.8
4006211	BF	21	26.2	28.9	29.2	30.2	
4811371	BF	37	30.2	32	34.4	37	37.5
4921271	BF	27	28.6	33.1	34	34.3	34.7
5378491	BF	49	28.3	30.7	33.4	33.2	36
5642231	BF	23	26.5	27.3	29.6	29.6	30
6309241	BF	24	30.7	29.7	31	32.3	37.9
7346221	BF	22	24.2	23.5	25.8	28.2	29.4
7479241	BF	24	26.5	28.4	29.6	28.8	29.6
7591291	BF	29	28.4	27.9	29.3	29.6	30.2
7963301	BF	30	27.8	28.7	31.6	32.9	33.4
8677261	BF	26	29.6	28.5	32.6	30.3	30.9
10277341	BF	34	30.5	32.4	33.5	34.2	35.2
745400	BM	40	31.5	34	35.1	36.5	38.2
1224630	BM	63	28.1	31.3	31	31.9	37.3
1751390	BM	39	38.1	37.2	37.2	35.9	36.4
1837250	BM	25	30.1	33.3	43.6	34.3	35.2
2139430	BM	43	35.7	38.6	38.4	39.6	36.7
2336320	BM	32	32.1	31.2	33.4	35.3	37.5
2583380	BM	38	33.7	35	33.8	34.9	38
2838310	BM	31	31.4	33.3	33	36	36.5
2975380	BM	38	32.8	35.7	34.5	35.9	39.6
3591250	BM	25	34.5	35.5	36.1	37.8	42.9
3796340	BM	34	34.6	35.4	35.8	37.8	38.2
3819360	BM	36	32.4	34.1	37.2	38	38.9

Case ID	P	Age	VDMaxAP				
			L1	L2	L3	L4	L5
4274270	BM	27	37.2	37	36	35.2	35.6
4421330	BM	33	32.4	33.1	32.8	34.7	
4518330	BM	33	29.1	30.7	33.2	34.9	36.9
4759360	BM	36	29.5	30.1	32.4	34.3	34.6
5114370	BM	37	32.5	33.1	34.2	33.7	34.8
5989270	BM	27	30	31.7	34.8	35.7	37.7
6105390	BM	39	33.7	35.7	35.9	38.1	
6426270	BM	27	32	35.3	36.2	36.7	38.4
6771200	BM	20	28.7	30.4	32.9	32.4	35
7172230	BM	23	32.1	33.9	34.3	33.4	35.6
8199370	BM	37	32.9	36.2	37.8	36.2	37.5
8213390	BM	39	30.9	32.8	36.3	36.7	36.8
8313270	BM	27	32.5	32.6	34.3	35.6	36.6
8720220	BM	22	36.1	38.5	38.8	40.8	37.7
8887370	BM	37	29.6	32.6	35.2	37.1	37.9
9053260	BM	26	30.7	32.4	34.6	34.6	37.3
9519250	BM	25	32	35.1	34.4	37	36.3
9895210	BM	21	29.1	31.4	32.8	34	38.5
10037320	BM	32	30.1	30.3	32	34	35.2
10318380	BM	38	33	34.4	34.8	34.6	37.8
543250	BM	25	29.9	32	32.8	33.7	35
228651	WF	65	36.3	37.9	33.7	33.3	32.8
1041321	WF	32	31.9	33.1	33.5	34.3	39.6
1391501	WF	50	33.4	35.2	37.1	37.3	33.5
1505241	WF	24	30.4	31.8	31.1	31.4	36
3080371	WF	37	32.3	32.7	32.3	33.6	37.7
4697341	WF	34	26.6	28.5	30.5	29.9	31.1
5049551	WF	55	30	30.2	31.4	30.4	31.8
5219261	WF	26	30.9	33	31.7	30.5	32.5
6672461	WF	46	27.4	30.5	30.1	30.1	33.6
7010401	WF	40	28	29.2	31.2	30.6	32
8517231	WF	23	30.6	32.7	33.9	33.7	34.9
8968431	WF	43	33	35.5	36.6	37.2	38.9
9444231	WF	23	33.7	31.8	31.8	33.2	34.8
9766331	WF	33	30	29.4	32.1	33.1	34.4
474590	WM	59	34.7	37.9	37.9	36.9	39.1
844300	WM	30	36.2	36.8	36.3	37.5	39.7
2446350	WM	35	41.5	43.9	42.5	40.3	40.7

Case ID	P	Age	VDMaxAP				
			L1	L2	L3	L4	L5
2796360	WM	36	33.4	34.2	34.9	37.3	34.7
3406620	WM	62	38.1	37.6	39.1	38.4	43.6
3996360	WM	36	32.4	32.5	32.5	34.4	35.1
4337270	WM	27	31.8	33.3	33.3	33	33.9
5431250	WM	25	33.2	35.8	35.9	35.3	36.3
5816390	WM	39	32.1	32.1	35.4	35.4	40.9
8064380	WM	38	35.5	36.9	35.9	36.9	39.4
9672360	WM	36	33.9	34.4	35	34.6	35.3
10153260	WM	26	32.5	34.5	35.8	37	35.2
10412510	WM	51	37.7	40.8	39.9	40.1	39.2

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 4: Table indicating the minimum AP vertebral body diameter (VDMinAP) measured on the CT scans

Case ID	P	Age	VDMinAP				
			L1	L2	L3	L4	L5
175281	BF	28	25.7	27.1	28.9	29.8	31.8
376411	BF	41	22.3	24.1	26.1	29	31.5
696271	BF	27	26.2	28.9	31.8	31.6	31.8
940381	BF	38	24.5	28.3	28.9	29.5	29.8
1188251	BF	25	22.6	24.5	25.4	28	30.7
1689331	BF	33	24.7	26.2	29.1	31	32
1983451	BF	45	24.4	25.2	27.3	28.5	30.7
2286451	BF	45	26.3	29.4	30.6	32.1	34.6
2622521	BF	52	26.5	29.4	31.1	34.2	35.2
3313231	BF	23	26.2	28.5	29.2	30.7	33.7
4006211	BF	21	24.8	26.7	28.1	29.5	
4811371	BF	37	28.2	30.3	32.1	35.5	35.7
4921271	BF	27	24.2	29.5	30.6	32.1	31.4
5378491	BF	49	26.7	28.9	31.9	31.7	33
5642231	BF	23	25.9	26.6	27.9	28.2	29.6
6309241	BF	24	29.2	29.1	29.1	31	36.6
7346221	BF	22	22.6	22.2	25	26.7	28.2
7479241	BF	24	24.6	27.4	27.9	28.1	27.7

Case ID	P	Age	VDMinAP				
			L1	L2	L3	L4	L5
7591291	BF	29	24.8	26.5	27.3	28.2	29.4
7963301	BF	30	26.4	26.4	29.4	31.1	32.4
8677261	BF	26	26.3	28.2	30.1	29	29.5
10277341	BF	34	29.4	31.3	32.1	33.8	33.8
745400	BM	40	27.2	30.4	33.4	35.1	35.1
1224630	BM	63	25.3	26.9	27.7	29.3	34.1
1751390	BM	39	34.5	35.9	34	33.1	33.7
1837250	BM	25	26.1	28.3	37	33	33.3
2139430	BM	43	32.3	35.9	35.9	37.1	35.7
2336320	BM	32	27.8	29	32.3	32.2	36.2
2583380	BM	38	29.9	32.1	31.7	33.8	36.9
2838310	BM	31	28.1	30.4	31.7	34.3	34.4
2975380	BM	38	31.7	32.6	31.7	34.2	38.6
3591250	BM	25	32.5	32.2	33.5	35.8	40.3
3796340	BM	34	31.3	33.8	34.2	34.1	34.1
3819360	BM	36	29.2	32.4	35.5	35.5	36.3
4274270	BM	27	36	35.3	34.6	32.6	33.4
4421330	BM	33	29.3	30.2	31	32.9	
4518330	BM	33	27	29.3	29.8	33.2	34.6
4759360	BM	36	27.1	28.3	30.2	32	33.5
5114370	BM	37	29.3	32.4	33.7	32.2	32.2
5989270	BM	27	27.6	30	32	34	36.4
6105390	BM	39	31.2	33.5	34.7	37.5	42.3
6426270	BM	27	31.4	33.6	34.3	34.8	36
6771200	BM	20	26.2	29.4	31.5	31.5	33.8
7172230	BM	23	30.8	32.8	32.8	33.2	32.6
8199370	BM	37	31.6	35.9	37.5	35.4	36.7
8213390	BM	39	28	30.2	33.8	34.7	33.5
8313270	BM	27	30.6	32.3	33.3	33.5	36
8720220	BM	22	34.8	35.9	37.7	36.9	35.5
8887370	BM	37	29.1	31.7	33.4	35.7	37.4
9053260	BM	26	28.3	31.2	33.9	33.1	35.9
9519250	BM	25	31.1	32.8	31.6	35.1	34.2
9895210	BM	21	27.8	29.1	31.3	32.3	38.1
10037320	BM	32	29.1	29.4	30.6	32.5	34
10318380	BM	38	31.6	32.3	33.5	33	37.4
543250	BM	25	26.9	30.4	31.7	32.8	34.2
228651	WF	65	31.8	32.2	33.4	31.6	30.7

Case ID	P	Age	VDMinAP				
			L1	L2	L3	L4	L5
1041321	WF	32	28.5	31.2	31.3	31.2	36.8
1391501	WF	50	29.5	32.5	34.2	33.4	32.1
1505241	WF	24	27.6	28.3	29	30.4	34.8
3080371	WF	37	29.5	29.9	30.8	30.4	36.4
4697341	WF	34	23.6	27.4	28.6	28	28.6
5049551	WF	55	27.9	29.3	27.8	28.8	30.1
5219261	WF	26	29.2	30.5	29	29	31.5
6672461	WF	46	26	28.2	28.9	29.5	32.2
7010401	WF	40	25.2	27.5	29.2	29.3	29.5
8517231	WF	23	29.3	31.8	31.7	31.8	32
8968431	WF	43	30.7	34.1	34.4	34.1	36
9444231	WF	23	27.7	29.9	29.9	31	32.3
9766331	WF	33	28.8	28.5	29.2	32	32.8
474590	WM	59	30.7	32.7	35.1	34.6	34.9
844300	WM	30	33.1	33.4	34	35.9	37.8
2446350	WM	35	36.9		39.3	38.9	39.6
2796360	WM	36	31	32.9	32.2	34.4	32.7
3406620	WM	62	34.8	35.4	35.4	36.2	41.3
3996360	WM	36	28.6	30.3	31.1	31.7	31.1
4337270	WM	27	28.7	29.7	30.5	30.6	32.1
5431250	WM	25	31.3	33.8	33.2	32.1	34.8
5816390	WM	39	29.4	30.4	32	33	39.9
8064380	WM	38	33.2	34.4	34.2	34.6	35.9
9672360	WM	36	32.6	32.1	32.3	32.3	31.7
10153260	WM	26	31.7	33.6	34.1	35.2	33.2
10412510	WM	51	37.2	39.1	36.7	37.3	38.9

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 5: Table indicating the anterior vertebral height (VHa) measured on the CT scans

Case ID	P	Age	VHa				
			L1	L2	L3	L4	L5
175281	BF	28	26.5	27.2	29.5	30.3	26.9
376411	BF	41	27.6	28.4	30.7	28.9	30.9
696271	BF	27	25.9	27.4	31.1	29.4	32.1
940381	BF	38	28	28.1	29.4	27.6	30.2
1188251	BF	25	28.6	29.3	29	28.5	29.2
1689331	BF	33	26.8	27.6	28.3	29.5	28.6
1983451	BF	45	24.8	26.1	25.2	27.8	26.6
2286451	BF	45	26.9	27.7	28.8	28.1	30.5
2622521	BF	52	27.5	29	29.3	27.3	27
3313231	BF	23	27.9	29.5	29.9	30.3	31.4
4006211	BF	21	23.6	25.2	26.7	26.1	
4811371	BF	37	27.7	26.9	27.2	27	26.6
4921271	BF	27	29.3	28.1	30.1	30.7	32.9
5378491	BF	49	25.8	26.4	26.1	26.1	27.7
5642231	BF	23	25.5	25.9	29.2	27.9	27.8
6309241	BF	24	27.3	28.1	27.7	30.1	31.9
7346221	BF	22	25.9	27.3	28	26.2	27
7479241	BF	24	29.7	31.6	32.5	33.6	34.2
7591291	BF	29	27	26.3	29.2	28.2	29.1
7963301	BF	30	29.4	30.9	30.6	32	31.8
8677261	BF	26	24.1	26.1	28.2	28	28.1
10277341	BF	34	28.1	30.4	29.9	31.3	30.7
745400	BM	40	27.3	29.4	30.9	30.6	29.9
1224630	BM	63	26.7	27.4	27.6	26.7	28.6
1751390	BM	39	26.2	29.5	31.7	31.1	32.8
1837250	BM	25	30.2	32.1	32	31.9	32.6
2139430	BM	43	28.6	31.6	30.4	30.1	25.7
2336320	BM	32	35.5	34.6	31.9	33	33.3
2583380	BM	38	28.4	28.7	28.8	30.8	31.8
2838310	BM	31	31.1	32.2	31.4	30.4	32.4
2975380	BM	38	28.7	30.3	30.4	32.7	29.1
3591250	BM	25	28.8	29	31.7	31.4	32.9
3796340	BM	34	27.9	29.3	30.3	29	30.1
3819360	BM	36	29.8	30.5	32.2	29.8	31.1
4274270	BM	27	33.8	34.9	36.7	34	36.4

Case ID	P	Age	VHa				
			L1	L2	L3	L4	L5
4421330	BM	33	27.8	28.5	28.1	28.2	
4518330	BM	33	27.6	28.7	30.4	29.3	30.8
4759360	BM	36	28.8	30	29.8	29.1	31.8
5114370	BM	37	28.7	29.8	28.3	33.1	31.3
5989270	BM	27	29.6	30.5	30.6	31.9	32.4
6105390	BM	39	30.4	32.7	34.9	34.4	34.9
6426270	BM	27	28.2	29.1	33.5	31.6	31.8
6771200	BM	20	26.4	29.2	30.1	28.1	30.8
7172230	BM	23	28.9	29.5	32.8	32.3	34.4
8199370	BM	37	28.3	29.1	31.6	32.8	33
8213390	BM	39	28.9	29.4	31.8	30.3	32.4
8313270	BM	27	30.2	30.1	32.2	33.6	32.1
8720220	BM	22	32.9	33.2	36.2	35.1	36
8887370	BM	37	29.9	32.1	31.8	31.1	31.2
9053260	BM	26	27.8	27.5	29.1	29.5	29.4
9519250	BM	25	29	29.8	27.6	29.8	28.8
9895210	BM	21	31	31.2	30.5	31.8	32.8
10037320	BM	32	32.1	33	34.6	33.8	34.6
10318380	BM	38	32.4	34.8	35.9	34.5	34.2
543250	BM	25	32.7	31.4	30.6	29.3	31.3
228651	WF	65	25.1	28.3	29.8	28.7	28
1041321	WF	32	29.1	30.1	30.7	29.4	29
1391501	WF	50	28.8	29.6	28.6	28.8	29.7
1505241	WF	24	27.4	29	29.7	30.3	30.9
3080371	WF	37	28.4	26.9	26.9	26.9	28.3
4697341	WF	34	27.5	29.1	30.4	29.8	31.9
5049551	WF	55	25.1	27.1	29.9	30.1	29.9
5219261	WF	26	29.7	30.1	31.6	31.6	32.5
6672461	WF	46	29.6	33	32.2	33.7	32.2
7010401	WF	40	25.2	27.5	28.7	29.1	30.3
8517231	WF	23	29.7	30.8	31.5	32	33.3
8968431	WF	43	30.3	31.7	32.3	33.6	33.7
9444231	WF	23	25.3	28.9	29	30.2	30.2
9766331	WF	33	28.1	31.1	31.9	31.3	31.1
474590	WM	59	25.5	27.8	28.6	27.5	28.9
844300	WM	30	27.2	29.9	31.2	31.3	30.9
2446350	WM	35	29.3	30.8	31.5	32.9	32.5
2796360	WM	36	26	29	30.4	28.3	30.2

Case ID	P	Age	VHa				
			L1	L2	L3	L4	L5
3406620	WM	62	28.6	28.4	32.2	33.8	33.8
3996360	WM	36	27.4	28.8	31.5	28.4	32.5
4337270	WM	27	26	28.3	28.6	29	30.3
5431250	WM	25	30.6	31.1	32.7	31.2	28.7
5816390	WM	39	31.3	33.9	34	30.8	33.5
8064380	WM	38	30	32.5	31.9	30.7	32.3
9672360	WM	36	29.1	30.8	31.6	31.8	32.4
10153260	WM	26	30.5	31.6	31.4	32.3	31.9
10412510	WM	51	32.5	34.6		35	35.8

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 6: Table indicating the posterior vertebral height (VHp) measured on the CT scans

Case ID	P	Age	VHp				
			L1	L2	L3	L4	L5
175281	BF	28	26.7	28.6	28.3	27.9	27.4
376411	BF	41	30.2	29.9	31.2	30.7	26
696271	BF	27	28.3	30.2	32.4	30.8	27.9
940381	BF	38	28.1	28.9	27.9	27.7	26.2
1188251	BF	25	29.6	31.4	29.9	28.9	26.9
1689331	BF	33	28.4	29	28.9	28.5	27.4
1983451	BF	45	22.3	26.7	26.3	27	24.3
2286451	BF	45	27.7	29	28.5	28.1	26.5
2622521	BF	52	29.5	30.8	29	27.9	24.7
3313231	BF	23	29.8	30.1	29.9	29.3	27.7
4006211	BF	21	25.1	24.2	22.6	23.3	
4811371	BF	37	27.4	28.8	26.3	26	25.5
4921271	BF	27	31	29.7	31.1	31.1	29.3
5378491	BF	49	25.7	26.9	27.3	26.4	23.7
5642231	BF	23	26.2	27.5	26.4	26	23.8
6309241	BF	24	28	28.1	27.8	26.3	24.6
7346221	BF	22	27.2	28.2	29.9	28.8	25.3
7479241	BF	24	29.7	32.1	32.2	31.4	27.5
7591291	BF	29	27.3	26.8	28.4	27.8	25.7

Case ID	P	Age	VHp				
			L1	L2	L3	L4	L5
7963301	BF	30	31.7	31.8	31.8	30.5	26.8
8677261	BF	26	27.3	28.2	27.3	27.2	26
10277341	BF	34	28.5	30.2	31.5	29	27.2
745400	BM	40	29.8	31.4	32.3	31.1	30.6
1224630	BM	63	29.7	26.5	26.8	26.7	26
1751390	BM	39	30.9	30.6	31	30.5	28.5
1837250	BM	25	31.7	32.5	31.5	30.5	29.1
2139430	BM	43	29.4	33.4	31.3	30.6	30.4
2336320	BM	32	29.6	31.5	30.9	33.1	33.4
2583380	BM	38	28.7	29.5	28.1	28.9	26.7
2838310	BM	31	32.8	32.3	32.4	30.9	28.5
2975380	BM	38	31.1	32.6	29.1	28	27.5
3591250	BM	25	31.5	32.6	33.9	31.6	30.5
3796340	BM	34	28.8	29	29.4	28.9	27.8
3819360	BM	36	31.7	32.1	32.9	31.4	29.4
4274270	BM	27	35.6	36.1	37.4	35.6	31.5
4421330	BM	33	29.5	27	27.7	26.9	
4518330	BM	33	29.9	29.5	28.2	27	25.6
4759360	BM	36	31.6	32.6	31	31.3	30.2
5114370	BM	37	29.8	29.6	29.2	30.7	26.3
5989270	BM	27	32.4	32	30.5	29	30.2
6105390	BM	39	32.7	34.5	32.7	31	32.1
6426270	BM	27	32.5	32.9	33.1	30.5	28.8
6771200	BM	20	29.5	29	28.4	27.3	28.3
7172230	BM	23	30.6	32.8	32.1	31.4	28.5
8199370	BM	37	31.7	32.6	30.8	31.8	27
8213390	BM	39	32	34.2	33	31.3	27.8
8313270	BM	27	34.3	32.5	34.1	34.4	31.3
8720220	BM	22	33	34.5	36.2	34.8	31.7
8887370	BM	37	31.2	30.5	29.5	28.2	27
9053260	BM	26	29.1	29.3	28.1	29.1	26
9519250	BM	25	27.9	30.6	29.9	28.7	25.1
9895210	BM	21	31.4	31.1	29.7	29.8	28.1
10037320	BM	32	32.4	33.8	34.5	33.7	30
10318380	BM	38	34.1	36.2	35.1	32.7	30.8
543250	BM	25	35	34.1	32.3	31	28.3
228651	WF	65	28.8	30.9	28.8	27.3	22.1
1041321	WF	32	30.5	29.4	29.7	29	24.9

Case ID	P	Age	VHp				
			L1	L2	L3	L4	L5
1391501	WF	50	32.2	32.4	30.6	26.6	24.7
1505241	WF	24	28.3	29	27	27.3	27.4
3080371	WF	37	27.4	25.9	27.2	25.1	24.5
4697341	WF	34	29	30	29.8	27.8	25.7
5049551	WF	55	29.8	28.9	31.2	29.8	27.2
5219261	WF	26	30.5	30.3	30.6	30.4	26.1
6672461	WF	46	30	29.5	29.7	28.8	27.6
7010401	WF	40	27	28.5	27.4	26.7	25.1
8517231	WF	23	31.5	31.9	32.7	30.1	27
8968431	WF	43	33.4	32.4	32.1	28.7	28.4
9444231	WF	23	29.6	30.9	31.4	28.6	26.1
9766331	WF	33	30.2	30.9	30.5	30.6	28.1
474590	WM	59	28.9	30.4	30.1	26.4	25.7
844300	WM	30	29.4	30.1	30.5	30.9	24.6
2446350	WM	35	28.1	31	29.9	30.1	32
2796360	WM	36	27.3	29.4	33.7	29.4	27.5
3406620	WM	62	30.6	32.4	31.3	30.4	30.5
3996360	WM	36	31.7	31.5	31.2	28.6	26.9
4337270	WM	27	31.6	30	28.2	28.2	27.3
5431250	WM	25	36.3	33.3	31.9	27.5	25.4
5816390	WM	39	30.6	31.4	31.4	29.7	29.5
8064380	WM	38	32.9	32.7	33.2	32.3	29.1
9672360	WM	36	31.6	31	31.6	30.6	27.3
10153260	WM	26	32.5	32.4	31.2	33.3	28.7
10412510	WM	51	34.9	35.4		34.7	30.4

Key: P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females. All measurements are in millimetres. Blank cells are those where measurements could not be performed

APPENDIX A.5: RAW DATA FOR MRI SCANS – SAGITTAL SECTIONS

Table 1: Table indicating the foraminal height (FH) measurements taken on the MRI scans

Case ID	P	Age	FH				
			L1	L2	L3	L4	L5
183380	BM	38	18.9	20.2	20.1	21.3	19.7
314460	BM	46	17.4	22	21	25	20
408471	BF	47	19.9	20	22.4	22.2	21.9
530410	BM	41	15.5	15.7	18	19.7	22.4
659360	BM	36	17.4	18.6	23.3	23	24.9
726421	BF	42	17.1	19	24.3	24.1	21.9
818341	BF	34	19.4	21.1	19.6	19.4	22.7
1178240	BM	24	15.9	17.5	18.4	17.4	17.4
1268220	BM	22	18.3	22.4	22.4	23.4	24.8
1496550	BM	55	17.4	17.9	18.2	19.3	18.8
1523431	BF	43	14.4	18.3	18.5	18.7	
1750490	BM	49	18.6	19.8	19.5	23.3	
1858360	BM	36	16.2	16.5	18.3	18.3	18.7
1939260	BM	26	19.6	20.2	20.3	20.3	21.7
2019270	BM	27	18	20.4	21.1	18.7	18.1
2183330	BM	33	18.4	21.1	19.6	22.3	19.1
2253281	BF	28	16.2	15	15.9	17.8	17.6
2324340	BM	34	11.1	14.8	17.5	17.4	20.4
2411580	BM	58	14.5	17.1	19	20	23.4
2585450	BM	45	12.7	19.2	20.1	18.6	24.4
2667260	BM	26	18.4	22.7	23.8	23.6	19.7
2824511	BF	51	14.7	15.3	18	17.7	19.5
2942340	BM	34	20.3	22.5	22.9	22.1	22.7
3021501	BF	50	17.4	21.8	20.5	19	18.3
3103241	BF	24	17.5	18	21.2	21.2	21.6
3772341	BF	34	16.2	20.4	22.3	19.1	17.7

Key: P = Population group; B = Black; W= White; M = Male; F = Female. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 2: Table indicating the superior foraminal diameter (SFD) measurement taken on the MRI scans

Case ID	P	Age	SFD				
			L1	L2	L3	L4	L5
183380	BM	38	9.6	7.6	7	6.6	4.1
314460	BM	46	9.1	8	8.3	7.5	7.3
408471	BF	47	6.6	6.1	7.6	6.7	5.6
530410	BM	41	9.2	11	9.1	6	3.5
659360	BM	36	8.8	7.5	5.5	6.3	4.7
726421	BF	42	7.2	10.3	9.5	7.8	5.2
818341	BF	34	9.6	6.7	6.7	6.3	5.7
1178240	BM	24	4.5	6	5.7	5.2	5.4
1268220	BM	22	6.5	5.5	6.5	5	5.3
1496550	BM	55	7	9.2	8.7	8.5	8
1523431	BF	43	7.1	9.2	7.6	7.5	
1750490	BM	49	6.3	6	3.8	3.5	
1858360	BM	36	8.1	7.6	7.7	5.9	4.9
1939260	BM	26	6.3	5.9	6.1	5.9	5.9
2019270	BM	27	7.7	6.7	7.9	6.4	6.1
2183330	BM	33	8.6	8.8	7.4	7.7	7.5
2253281	BF	28	7.7	6.5	7.5	7.9	5.5
2324340	BM	34	7.5	8.2	7.4	5.6	5.4
2411580	BM	58	8.7	8.2	7.6	6.2	
2585450	BM	45	6.9	8	7.8	8	7.1
2667260	BM	26	5.3	7.5	6	5.5	5
2824511	BF	51	11.6	8	7.6	6.6	6.2
2942340	BM	34	10.2	7.6	6.9	8.5	9.7
3021501	BF	50	7.6	8.6	8.5	9.7	7.2
3103241	BF	24	10.8	10.5	11.8	10.7	7.8
3772341	BF	34	7.6	6.1	5.5	6	4.1

Key: P = Population group; B = Black; W= White; M = Male; F = Female. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 3: Table indicating the middle foraminal diameter (MFD) measurement taken on the MRI scans

Case ID	P	Age	MFD				
			L1	L2	L3	L4	L5
183380	BM	38	8.4	6.6	4.1	5	3.5
314460	BM	46	9.2	8.4	7.8	5.3	5.5
408471	BF	47	6.1	5.3	5.5	5.6	3.8
530410	BM	41	10.1	9.7	8.2	6.9	3.1
659360	BM	36	7.6	7.2	5.7	6	4.7
726421	BF	42	6.9	9.6	9	6.7	4.6
818341	BF	34	9.8	5.3	5.8	5.2	3.1
1178240	BM	24	5.3	5.1	3.4	4.1	4.3
1268220	BM	22	7	4.5	5.8	3.7	4.1
1496550	BM	55	5.9	9	6.6	7.1	6.9
1523431	BF	43	7.6	8.9	6.5	3.5	
1750490	BM	49	5.8	4.5	4.2	4.1	
1858360	BM	36	7.7	6.2	5.2	3.8	2.9
1939260	BM	26	5.3	4.2	4.9	4.5	4.9
2019270	BM	27	7	6.4	6.7	6.1	4.3
2183330	BM	33	6.6	6.7	7.1	7.4	5.3
2253281	BF	28	7.9	6.4	6.3	5.8	3
2324340	BM	34	7	7.3	5.4	4.6	3.4
2411580	BM	58	7.7	8	6.3	4.1	
2585450	BM	45	7.1	8	6.9	5.8	4.5
2667260	BM	26	4.2	5.4	5.5	5.3	3.4
2824511	BF	51	8.8	6.6	5.4	5.3	5.8
2942340	BM	34	9.1	6.2	6.3	8.2	6.2
3021501	BF	50	7	7.9	9.1	6.5	6.2
3103241	BF	24	9	9.6	8.6	8.3	4.2
3772341	BF	34	6.7	4.1	5.1	4.6	3.3

Key: P = Population group; B = Black; W= White; M = Male; F = Female. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 4: Table indicating the inferior foraminal diameter (IFD) measured on the MRI scans

Case ID	P	Age	IFD				
			L1	L2	L3	L4	L5
183380	BM	38	8.3	7.9	6.6	5.3	4.8
314460	BM	46	8.7	7.7	5.1	5.9	0
408471	BF	47	5.8	4.4	5	4.2	4.6
530410	BM	41	8.4	9.2	7.2	6.3	2
659360	BM	36	5	4.4	5.6	5.4	3.2
726421	BF	42	5.6	7.6	7.4	4.4	3.1
818341	BF	34	8.9	5.2	5.2	4.2	3.1
1178240	BM	24	3.9	5.5	2.8	3.4	5
1268220	BM	22	8	5	4.5	4.3	4.2
1496550	BM	55	6.3	9	6.8	6.6	7.6
1523431	BF	43	7	6.5	4.9	4.6	
1750490	BM	49	5.7	4.8	4.4	4.8	
1858360	BM	36	6.4	6	6.2	4.3	3.5
1939260	BM	26	4.8	3.4	4	4.3	4.5
2019270	BM	27	5.1	5.8	4.7	6	5.1
2183330	BM	33	5.2	6.2	6.6	6.1	4.7
2253281	BF	28	7	6.4	5.5	5	3.2
2324340	BM	34	5.9	6.8	5.9	4.7	3.3
2411580	BM	58	7.3	6.5	5	4.4	
2585450	BM	45	6.9	7	5.8	3.7	3.8
2667260	BM	26	4.1	5.1	3.5	3.6	3.7
2824511	BF	51	8	6.6	5.3	3.7	3.4
2942340	BM	34	7.7	5.1	5.1	5.4	5.2
3021501	BF	50	5.4	6.9	5.7	3.1	1.8
3103241	BF	24	8.4	7.4	6.8	6.8	3.8
3772341	BF	34	7.3	4.7	4.3	3.6	3.5

Key: P = Population group; B = Black; W= White; M = Male; F = Female. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 5: Table indicating the root to disc length (RD) measured on the MRI scans

Case ID	P	Age	RD				
			L1	L2	L3	L4	L5
183380	BM	38	-1.7	2	2.4	3.8	3.7
314460	BM	46	0	1.7	1.8	3.5	-1.2
408471	BF	47	-4	-4.1	-1.9	1.7	4.1
530410	BM	41	-3.7	-1.9	-2.7	-3.8	2.4
659360	BM	36	-2.5	-3.5	-5.5	-5.2	-8.5
726421	BF	42	-2.1	-1.6	-1.5	-1.2	0.8
818341	BF	34	1.8	-1.9	-3.7	0	0
1178240	BM	24	-3	1.8	-2.5	4.1	1.4
1268220	BM	22	-1.8	-0.7	-2	-5.5	-4.3
1496550	BM	55	-2.5	-2	2.4	1.7	-1.8
1523431	BF	43	1.3	2.7	0.2	3.7	
1750490	BM	49	-2.6	-2.5	-2.1	-0.9	
1858360	BM	36	1.3	-1.3	1.7	-3.4	1
2019270	BM	27	-2.1	-0.9	-2.3	-4.1	-1.5
2183330	BM	33	-2.5	-3.3	-2.4	-2	-0.7
2253281	BF	28	1	1.4	-1	2.6	-2
2324340	BM	34	2	1.6	0	2.2	-1.9
2411580	BM	58	-3.7	-1.9	-0.2	-0.2	-1.3
2585450	BM	45	1.2	1.2	1.9	-2.6	-2.7
2667260	BM	26	-0.8	-3.1	-0.5	0	-1.3
2824511	BF	51	-2.7	0	-2.4	-2.7	-2.6
2942340	BM	34	-2.5	-2.8	2.6	3.8	-1.3
3021501	BF	50	-0.6	-0.9	0	2.9	0.5
3103241	BF	24	-0.8	1.4	4.4	2.9	2.8
3772341	BF	34	-2.6	-2	-4.2	1.2	0.9

Key: P = Population group; B = Black; W= White; M = Male; F = Female. All measurements are in millimetres. Blank cells are those where measurements could not be performed. Negative values are the measurements taken above the superior border of the disc

Table 6: Table indicating the root to pedicle distance (RP) measured on the MRI scans

Case ID	P	Age	RP				
			L1	L2	L3	L4	L5
183380	BM	38	11.1	8.1	9.7	9	8.5
314460	BM	46	11.4	11.7	13.2	12.4	7.8
408471	BF	47	14	14	13.8	11.1	11.6
530410	BM	41	12.8	8	11.2	14.8	14.9
659360	BM	36	11.5	12.6	17.7	16.7	20.1
726421	BF	42	9.5	13.2	14.9	13.7	9.8
818341	BF	34	9.2	12	12.6	8.7	13.3
1178240	BM	24	11.3	9	9.5	7.4	9.6
1268220	BM	22	13.8	13.7	16.3	16.5	16.3
1496550	BM	55	9	8.4	8.5	8.7	8.7
1523431	BF	43	7.7	8.5	11.7	8.5	
1750490	BM	49	9.4	13.2	13.3	14.1	
1858360	BM	36	9.2	10.3	9.6	11.5	13.9
2019270	BM	27	9.4	10.5	8.4	12.1	10
2183330	BM	33	9	12.2	12.8	13.7	10.8
2253281	BF	28	7.8	10.6	8.6	8.3	11.3
2324340	BM	34	5.4	8.4	9.6	10.6	12.1
2411580	BM	58	11.5	9.9	9.7	9.4	13.3
2585450	BM	45	9.1	10.5	11.3	12.1	17.4
2667260	BM	26	10.3	13.2	12.9	13.2	11.5
2824511	BF	51	9.3	6.7	10.1	9.5	8.6
2942340	BM	34	13	13.2	9.3	10.3	11.4
3021501	BF	50	10.7	13.2	13	7.2	6.5
3103241	BF	24	10.8	7.8	7.2	6.5	7.9
3772341	BF	34	12.1	13.9	17.2	10.2	9

Key: P = Population group; B = Black; W= White; M = Male; F = Female. All measurements are in millimetres. Blank cells are those where measurements could not be performed

APPENDIX A.6: RAW DATA FOR MRI SCANS – CORONAL SECTIONS

Table 1: Table indicating the distance from the intervertebral disc to where the vertical line drawn from the medial border of the pedicle intersects the nerve root (MedD) taken on the MRI scans

Case ID	P	Age	MedD									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
183380	BM	38	-1.9	-4.1	-2.5	-4.5	-5.8	-4.3	-7.2	-5.8	-6.3	-2.8
408471	BF	47	-3.6	-2.8	-4.8	-3.2		-2.9	-4	-7.8	-7.5	-8.5
530410	BM	41	-4.1	-3.1	-3.4	-2.9	-6.5	-2.5	-3.9	-7.2	-7.2	-9.1
659360	BM	36	-6.3	-4.6	-5.9	-7.2	-9.6	-7.7	-8.3	-8	-9.8	-7.5
1178240	BM	24	-7	-5	-6.1	-7.9	-2.8	-4.6	-6.7	-5.3	-5.6	-5.6
1268220	BM	22	-2.8	-3.8	-5.3		-4.6	-3	-6.6	-4.1	-5.8	-8.4
1496550	BM	55	-5.9	-2.3	-5.1	-4.8	-6.8	-6.3	-6.5	-7.3	-4.5	-6
2183330	BM	33	-8	-7.7	-8.1	-7	-8.2	-10.6	-9.6	-10.1		
2411580	BM	58	-4.9	-4.1	-5.4	-6.8	-5.7	-8.8	-5.4	-2.8	-5.4	-5.8
2585450	BM	45	-5.8	-5.8	-7.3	-7.5	-9.7	-10	-10	-7.2		

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed. Measurements with a negative value are those which lie above the superior border of the intervertebral disc

Table 2: Table indicating the distance from the intervertebral disc to where the vertical line drawn from the midline of the pedicle intersects the nerve root (MidD) taken on the MRI scans

Case ID	P	Age	MidD									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
183380	BM	38	1.9	0.4	0	0	0.8	1.9	0.6	1.8	-2.8	2.4
408471	BF	47	-2.1	0.6	0	2.9		-1.9	-1.9	-1.6	-3.8	-4.3
530410	BM	41	-2.6	-1.2	-1.7	-2.2	-2.9	-1	-1.3	-1.9	-2.7	-1.5
659360	BM	36	0.8	4.3	1.3	1.5	2.3	3.7	3.6	3.9	-1.6	2.2
1178240	BM	24	-3.6	-2	-2.8	-4.5	4	3.2	-1.7	2.7	3.4	3.4
1268220	BM	22	2.7	3.3	2		2.6	2.8	0.6	2.3	-2.5	-4.1

Case ID	P	Age	MidD									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
1496550	BM	55	-5.4	-5.1	-3.1	1.7	-2.8	2.4	-0.9	3	-1.2	0.7
2183330	BM	33	-5.6	-4.1	-3.6	-5.1	-2.2	-1.9	2.4	1.9		
2411580	BM	58	1.4	2.2	-2	-1.7	-2	-2.3	2.8	5.4	-2	1.7
2585450	BM	45	-1.8	-1.8	-3.3	-1.6	-1.8	0	-1.8	-2.7		

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed. Measurements with a negative value are those which lie above the superior border of the intervertebral disc

Table 3: Table indicating the distance from the intervertebral disc to where the vertical line drawn from the lateral border of the pedicle intersects the nerve root (LatD) taken on the MRI scans

Case ID	P	Age	LatD									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
183380	BM	38	3.6	6.4	2.2	1.2	2.5	5.2	6.5	7.2	7.5	10.5
408471	BF	47	4.6	5.4	2.9	3.2		3.4	3.5	2.7	3	2.7
530410	BM	41	-1	0.4	-1	0.7	-1.6	2.5	4.9	5.9	4.2	8.9
659360	BM	36	3.5	5.7	3.8	4.4	5.4	7.5	7.7	8.5	3.6	4.2
1178240	BM	24	1.9	3.1	3.1	3.6	8.7	5.3	7.5	9.3	9.8	10.8
1268220	BM	22	4.8	5.4	4		6.1	7.2	8.3	3.8	4.1	3.6
1496550	BM	55	5.7	5.7	2.6	5.7	3.7	4.2	5.9	9.2	4.5	6.6
2183330	BM	33	-3.6	-3.3	-1.5	-1.9	5.8	4.4	5.5	7.4		
2411580	BM	58	2.7	6.3	3.1	2.3	5.7	4.3	9.6	8.8	4.6	6.3
2585450	BM	45	1.8	2.4	2.7	3.5	4	6.1	5.4	6.5		

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed. Measurements with a negative value are those which lie above the superior border of the intervertebral disc

Table 4: Table indicating the distance from the pedicle to where the vertical line drawn from the medial border of the pedicle intersects the nerve root (MedP) taken on the MRI scans

Case ID	P	Age	MedP									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
183380	BM	38	10.8	10.6	14.7	12.8	17.9	12.8	15.4	16.2	16.1	14.3
408471	BF	47	12.8	12.5	13.1	11.5		13.6	15.2	16	15.5	13.9
530410	BM	41	10.3	11.2	12.2	10.8	15.3	14.4	13.3	15.9	12.1	10.6
659360	BM	36	14.4	14.9	17.2	17.5	20.3	21.6	18.5	23	21.3	22.1
1178240	BM	24	11.8	12.8	13.9	13.4	12.3	14.6	14.2	11.8	15.1	13.7
1268220	BM	22	14.2	12.5	13.2		14.8	14.5	16.3	16.3	13.7	17
1496550	BM	55	10.4	7.5	17.5	13.2	17.5	18.7	17.5	15.1	13.7	13.4
2183330	BM	33	15	16.8	15.1	17.8	20.2	21.9	18.5	17.3		
2411580	BM	58	12.5	11.1	12.2	16.1	15.6	17.9	19	20.7	15.1	18.7
2585450	BM	45	12.8	13.7	18.1	18.4	20.4	23.2	17.3	18.6		

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 5: Table indicating the distance from the pedicle to where the vertical line drawn from the midline of the pedicle intersects the nerve root (MidP) taken on the MRI scans

Case ID	P	Age	MidP									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
183380	BM	38	8.1	8.9	8.3	8.9	8.5	8.7	8	7.5	8	8.3
408471	BF	47	11.9	5.6	13.1	10.9		9.9	9.9	9.9	10.6	11.4
530410	BM	41	7.8	8.4	8.4	8.7	10.6	12.1	9.7	9.6	12.4	11.8
659360	BM	36	6.4	6.4	9.5	8.5	10	11	10.3	10	11.3	12.9
1178240	BM	24	7.5	7.3	10.3	11	6.7	9	9.5	5.9	10	8.5
1268220	BM	22	8.4	8.4	9.7		7.4	6.8	9.7	9.4	10.6	12.4
1496550	BM	55	3.7	5.1	10.1	7.6	11.3	8.3	8	6.9	6.5	6.8
2183330	BM	33	10.7	10.2	11.3	10.8	12.7	13	10.3	10.1		
2411580	BM	58	6.5	5.5	8.8	8.2	8.2	10.6	12.5	11.6	8.2	9.6
2585450	BM	45	8.2	7.1	10.4	11.7	12.9	12.4	9.3	11.7		

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 6: Table indicating the distance from pedicle to where the vertical line drawn from the lateral border of the pedicle intersects the nerve root (LatP) taken on the MRI scans

Case ID	P	Age	LatP									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
183380	BM	38	6.5	7.1	3.9	5.4	4.7	3.6	3.6	1.8	4.3	2.8
408471	BF	47	12.8	10.3	13.4	10.9		9.9	5.3	6.1	7.7	12.1
530410	BM	41	8.6	8.6	10.9	9.2	10.6	8.6	6.2	7.9	7.8	6.4
659360	BM	36	10.8	7.7	7.7	6.9	7.5	8.5	6.9	7.7	8.2	10.8
1178240	BM	24	5.8	6.7	9.3	8.6	7	4.2	5.9	5.6	6.4	4.7
1268220	BM	22	9.2	5	8.9		3.6	3.9	7.1	6.4	5.5	6.4
1496550	BM	55	5.8	5.4	8.2	7.3	8.9	6.2	2.1	5.6	4.5	3.9
2183330	BM	33	8.8	8.5	7.7	8.9	10.3	11.8	8.6	8.7		
2411580	BM	58	7.1	6.2	6.5	6.5	6	5.4	5.7	2.3	4	2.6
2585450	BM	45	7.3	3.4	8.9	7.8	9.5	8	5.8	6.9		

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

APPENDIX A.7: RAW DATA FOR MRI SCANS – TRANSVERSE SECTIONS

Table 1: Table indicating the inferior transverse foraminal depth (FDT) taken on the MRI scans

Case ID	P	Age	FDT											
			L1		L2		L3		L4		L5			
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right		
408471	BF	47			5.1	9.2								
530410	BM	41										5.6	7.6	
726421	BF	42							6.7	6.1		7.7	6.6	
1178240	BM	24					9.1	8.4	7.6	7.5		6.7	6.7	
1268220	BM	22					6.7	5.7	6.8	6.9		8.3	8.6	
1496550	BM	55			8.9	7.6	10.7	9.9	9.8	8.9		6.1	7.4	
1523431	BF	43							6.4	6.2		7.1	7	
1750490	BM	49	6.2	6.5	8.2	6.9	8.2	7.4	6.8	7.5		6.4	6.6	
1858360	BM	36					7.4	7.9	6.4	6.3		8.2	9.5	
1939260	BM	26	7.2	6.1										
2183330	BM	33										6.6	6	
2411580	BM	58					7.4	8	5	5.9		5.9	6.3	
2667260	BM	26	6.3	5	7.3	6.7	5.4	7.1						

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 2: Table indicating the inferior root to disc distance (RD) taken on the MRI scans

Case ID	P	Age	RD										
			L1		L2		L3		L4		L5		
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	
408471	BF	47			2.9	3.4							
530410	BM	41										1.7	2.1
726421	BF	42							2	2.1		3.5	3.5
1178240	BM	24					2.1	2.8	3.6	2.7		2.9	3.4
1268220	BM	22					0.5	1.6	2.1	2.1		2.7	2.5
1496550	BM	55			5	3	2.9	2.6	5.4	4.2		2.6	3.2
1523431	BF	43							3.1	3.1		2.5	1.8

Case ID	P	Age	RD									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
1750490	BM	49	3.5	3.7	3	3.3	2.3	3.3	2.5	2.6	2.1	2.5
1858360	BM	36					2.4	2.7	1.9	1.9	3	3.5
1939260	BM	26	3.3	2.2								
2183330	BM	33									2.8	2.4
2411580	BM	58					2.2	2.1	2.5	1.6	1.8	2.9
2667260	BM	26	2.9	2	3	2	1.4	2.6				

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 3: Table indicating the inferior root to facet distance (RF) taken on the MRI scans

Case ID	P	Age	RF									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
408471	BF	47			4.2	3.6						
530410	BM	41									4.2	6.1
726421	BF	42							8.7	8.4	3.7	3.3
1178240	BM	24					4.2	6.1	4.5	5.4	6	7.4
1268220	BM	22					5.5	4.8	5.5	4.4	6.3	5.4
1496550	BM	55			1	0.4	3	2.6	2	2.4	3.6	4.2
1523431	BF	43							2.9	3.6	1.8	3.2
1750490	BM	49	3	4	2.6	1.9	2.9	1.5	1.1	1.5	2.1	1.1
1858360	BM	36					6.6	5.3	4.3	3.8	6.6	5.2
1939260	BM	26	4.6	4.1								
2183330	BM	33									2	1.7
2411580	BM	58					5.3	4.9	4.3	3.8	4.8	3.3
2667260	BM	26	3.5	2	2.1	3.1	2.9	2.4				

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 4: Table indicating the inferior target angle (TA) taken on the MRI scans

Case ID	P	Age	TA											
			L1		L2		L3		L4		L5			
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right		
408471	BF	47			16.1	15.6								
530410	BM	41										8.3	8.5	
726421	BF	42							18.3	19.6	16.1	18.6		
1178240	BM	24					13.1	19.3	11.2	15.3	8.1	11.2		
1268220	BM	22					17.2	14.3	8.2	10.8	5.6	4.3		
1496550	BM	55			25.8	21.1	21.8	26.2	19.8	18.5	18.4	17.8		
1523431	BF	43							15.6	16.2	10.1	17.1		
1750490	BM	49	24.6	23.8	29.6	27.1	24.6	20.4	15.9	18.7	14.7	13.8		
1858360	BM	36					13.3	13.5	13.2	15.4	12.3	9.9		
1939260	BM	26	26.3	23.7										
2183330	BM	33									18.1	17.2		
2411580	BM	58					15.6	15.9	11.6	11	9	7.8		
2667260	BM	26	20.7	16	17.2	18.9	17.9	15.5						

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in degrees. Blank cells are those where measurements could not be performed

Table 5: Table indicating the superior transverse foraminal diameter (FDT) taken on the MRI scans

Case ID	P	Age	FDT										
			L1		L2		L3		L4		L5		
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	
408471	BF	47			6.6	7.1							
530410	BM	41									7.9	7.5	
726421	BF	42									8.5	7.6	
1178240	BM	24					9.4	8.2	11	9	7.2	8	
1268220	BM	22					6.3	7.8	6.7	6.2	7.8	7.2	
1496550	BM	55			7.7	5.5	8.9	7.9	11.5	9.2	10	11.9	
1523431	BF	43							8.6	8.8	7.9	10	
1750490	BM	49	7.3	6.8	7.7	6.7	7	7.4	7.4	7	6.8	7.2	
1858360	BM	36					6.9	6.8	8.1	8.1	7.1	8.2	
1939260	BM	26	8.2	7									
2183330	BM	33									8.5	7.3	

Case ID	P	Age	FDT									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
2411580	BM	58					8.2	6.6	6.2	5.3	7	6.6
2667260	BM	26	7.8	6.2	7.7	7.2	7.4	7.7				

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 6: Table indicating the superior root to disc distance (RD) taken on the MRI scans

Case ID	P	Age	RD									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
408471	BF	47			2.5	3.2						
530410	BM	41									2.7	2.2
726421	BF	42									2.2	3
1178240	BM	24					2.8	2.7	2.4	3	3.6	2.2
1268220	BM	22					2.7	1.9	2.9	2.1	3.4	2.7
1496550	BM	55			2.5	1.8	3.5	3.5	4.7	4	3.2	4.8
1523431	BF	43							3.7	3.7	2.6	3.1
1750490	BM	49	2.7	2.1	2.7	2.8	2.2	2.4	2.3	2.5	1.9	1.4
1858360	BM	36					2.5	2.5	4.4	4	2.8	3.2
1939260	BM	26	3.1	2.6								
2183330	BM	33									3.8	3.6
2411580	BM	58					2.4	1.3	2.7	2.2	2.5	2.2
2667260	BM	26	2.5	2.3	4.8	2.6	2.6	3.8				

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 7: Table indicating the superior root to facet distance (RF) taken on the MRI scans

Case ID	P	Age	RF									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
408471	BF	47			1.9	2.5						
530410	BM	41									4.2	3.5
726421	BF	42									2.7	3.1
1178240	BM	24					1.6	2.6	4.1	3.5	3.9	2.4

Case ID	P	Age	RF									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
1268220	BM	22					2.2	1.9	3.9	3.9	3.3	4.4
1496550	BM	55			2.2	2.2	1.5	1	2.4	1.9	3.3	4.1
1523431	BF	43							1.8	2	0.7	0.9
1750490	BM	49	3.5	2.3	2.7	2.1	2.1	2.5	1.7	0.9	1.3	1.8
1858360	BM	36					3.7	2.6	2	1.5	1.4	1.5
1939260	BM	26	2.4	2.1								
2183330	BM	33									3.3	2.3
2411580	BM	58					2.4	2.3	2.9	1.8	1	1.3
2667260	BM	26	2.2	2.2	0.7	1.2	1.1	1.4				

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in millimetres. Blank cells are those where measurements could not be performed

Table 8: Table indicating the superior target angle (TA) taken on the MRI scans

Case ID	P	Age	TA									
			L1		L2		L3		L4		L5	
			Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
408471	BF	47			25.9	22.6						
530410	BM	41									13.3	14.8
726421	BF	42									20.2	20.4
1178240	BM	24					17.7	15.1	15.9	15.4	10.2	10.5
1268220	BM	22					15.6	12.3	13.7	14.2	9.4	9.1
1496550	BM	55			22.9	21.6	22.2	23.8	22.2	22.6	13.8	13.5
1523431	BF	43							20.8	18.2	11	17.1
1750490	BM	49	27.7	28.2	31.7	28.8	23.2	25.3	20.1	18.9	16.4	19.3
1858360	BM	36					19.6	19.3	19.9	19.1	11.5	12.8
1939260	BM	26	30.5	29.3								
2183330	BM	33									20.2	19.8
2411580	BM	58					16.4	16.5	14.5	14.5	17.2	16.1
2667260	BM	26	18.7	19	23.3	21.2	20	18.2				

Key: P = Population group; BM = Black male; BF = Black female; WM = White male. All measurements are in degrees. Blank cells are those where measurements could not be performed

APPENDIX B.1: SCATTERPLOTS FOR LUMBAR LORDOSIS ANGLE (LLA) AND AGE CORRELATIONS

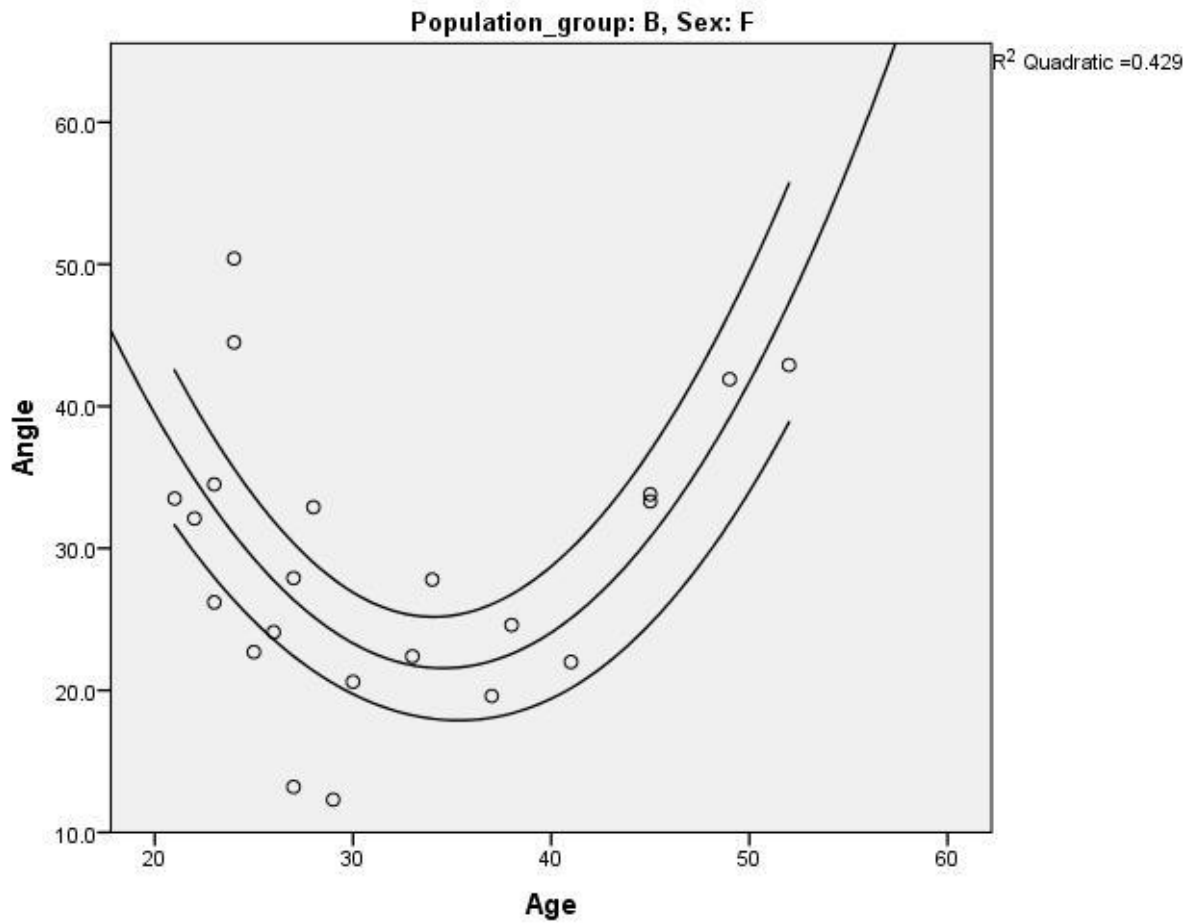


Figure 1: Figure showing the quadratic regression line between Age and LLA for black females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

APPENDIX B.2: SCATTERPLOTS FOR LUMBAR LORDOSIS ANGLE (LLA) AND MORPHOMETRICS CORRELATIONS

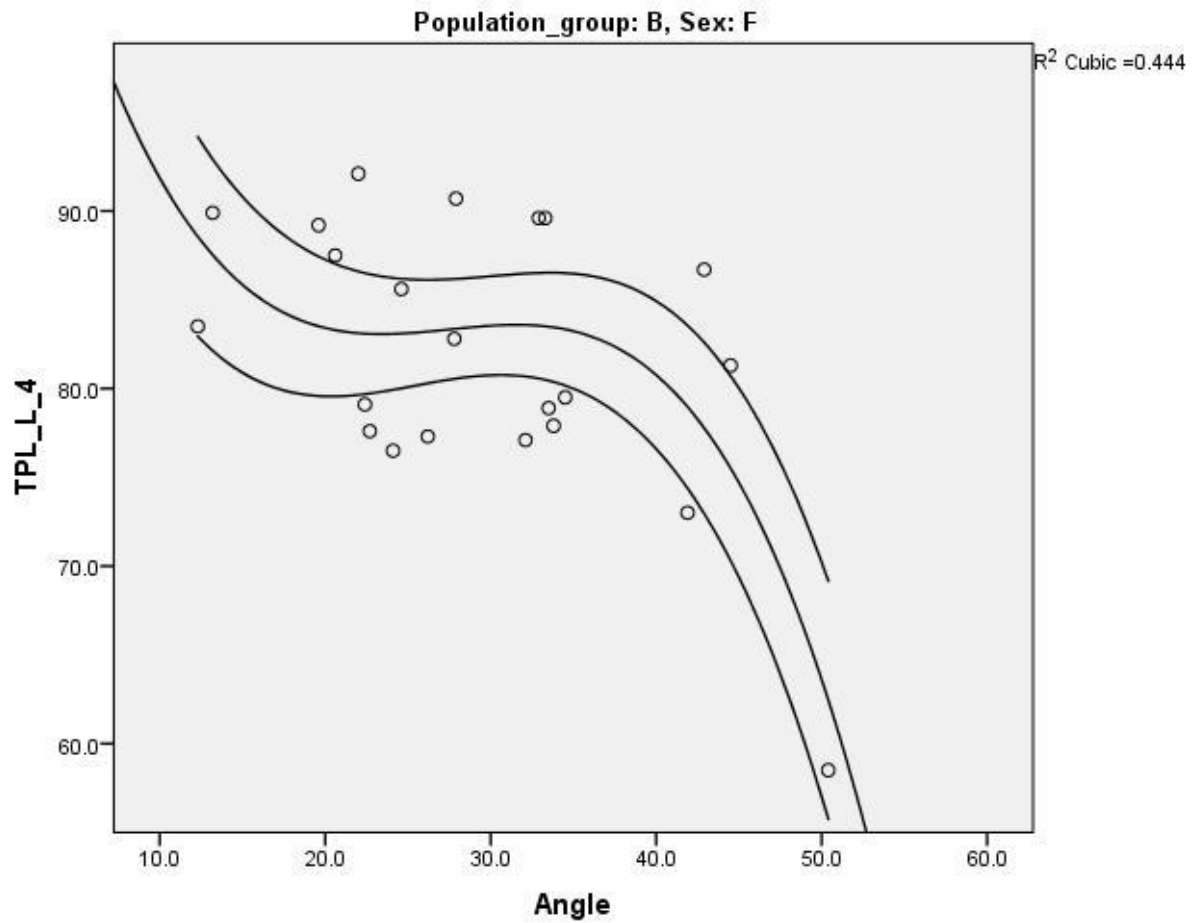


Figure 1: Figure showing the cubic regression line between the transverse process length (TPL) of L4 and LLA for black females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

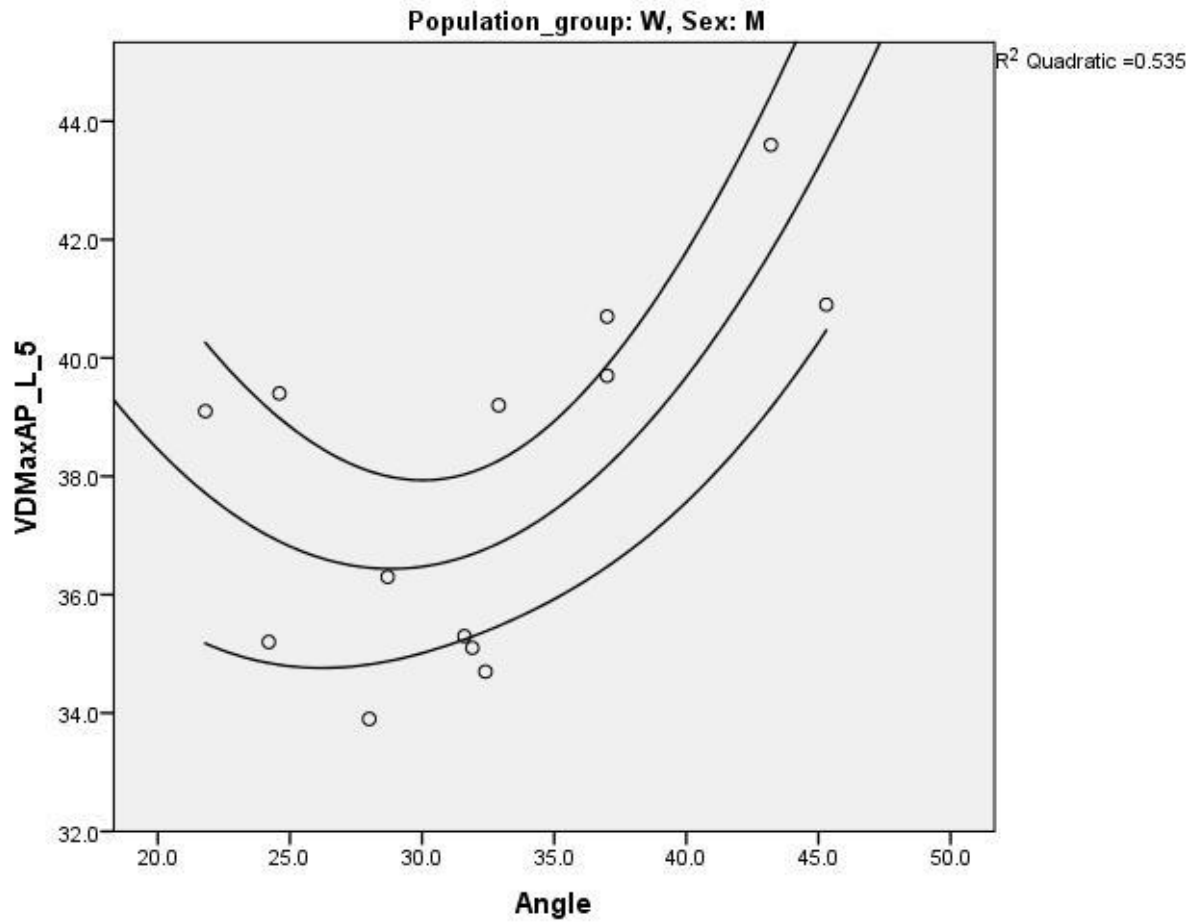


Figure 2: Figure showing the quadratic regression line between the maximum AP vertebral body diameter (VDMaxAP) of L5 and LLA for white males drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

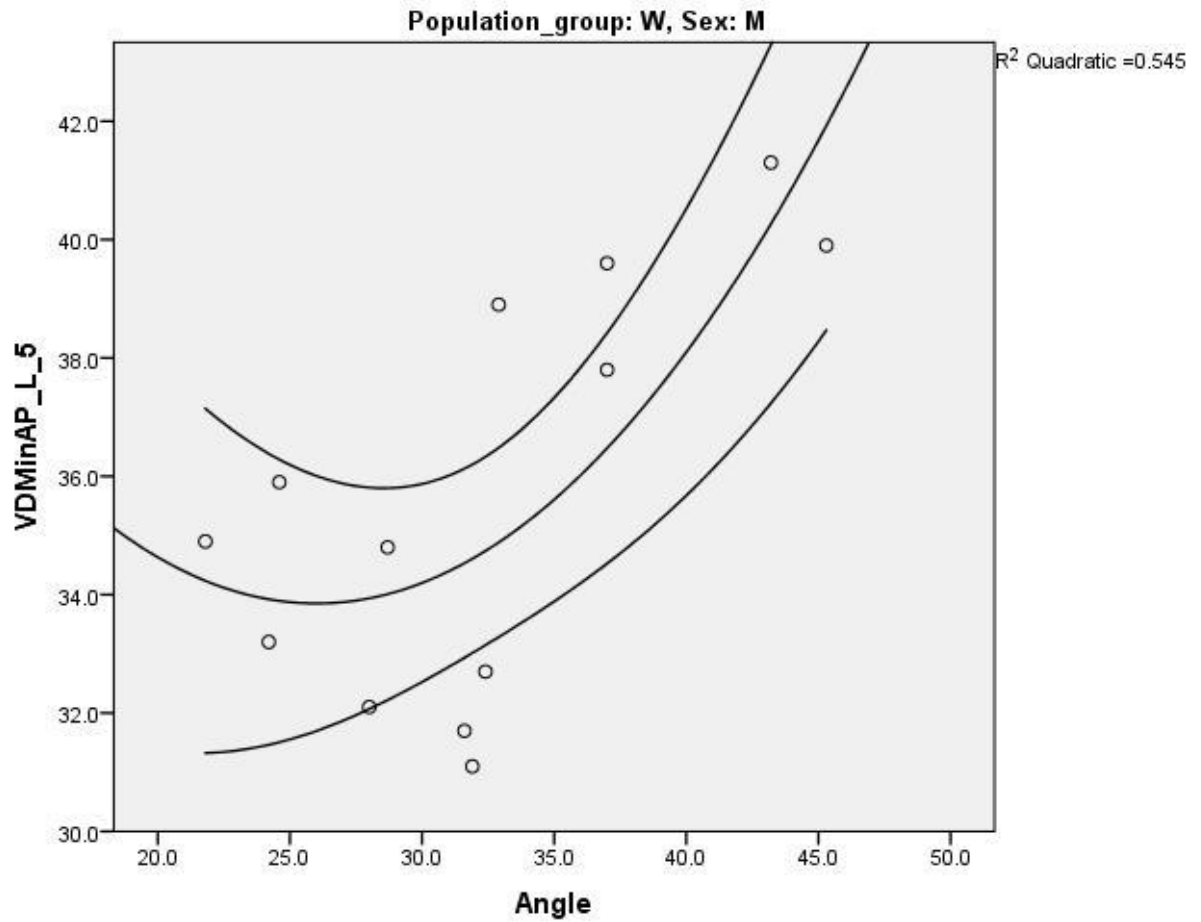


Figure 3: Figure showing the quadratic regression line between the minimum AP vertebral diameter (VDMinAP) of L5 and LLA for white males drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

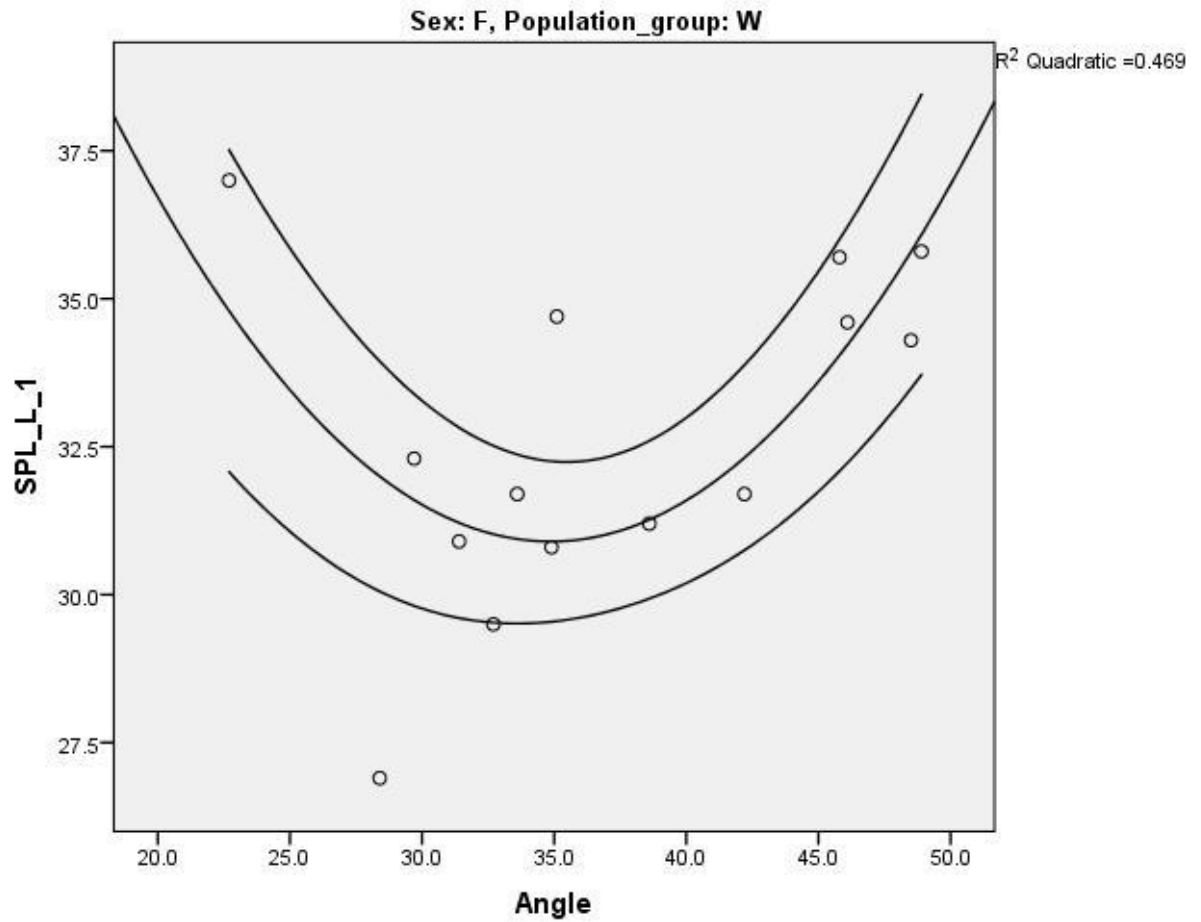


Figure 4: Figure showing the quadratic regression line between spinous process length (SPL) of L1 and LLA for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

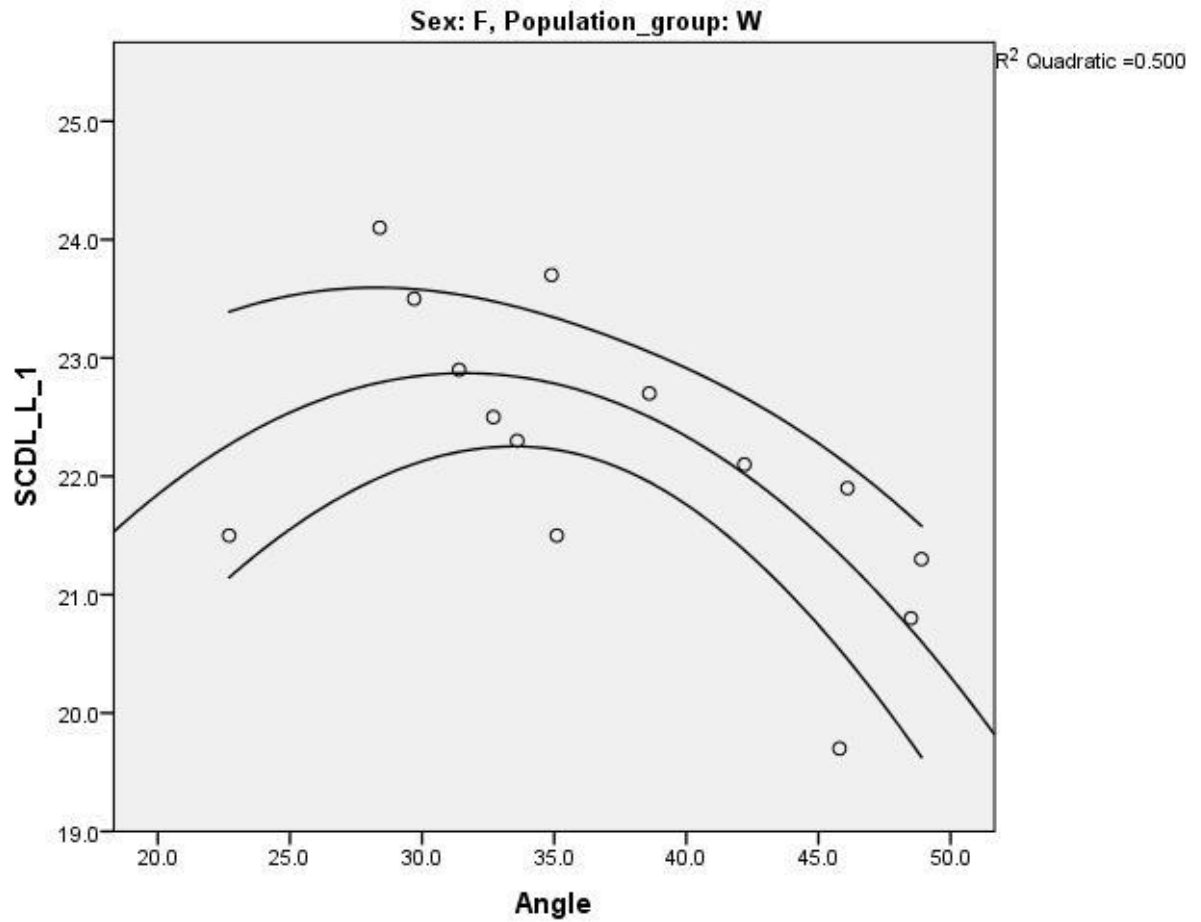


Figure 5: Figure showing the quadratic regression line between the lateral spinal canal diameter (SCDL) of L1 and LLA for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

APPENDIX B.3: SCATTERPLOTS FOR AGE AND BONE MINERAL DENSITY (BMD) CORRELATIONS

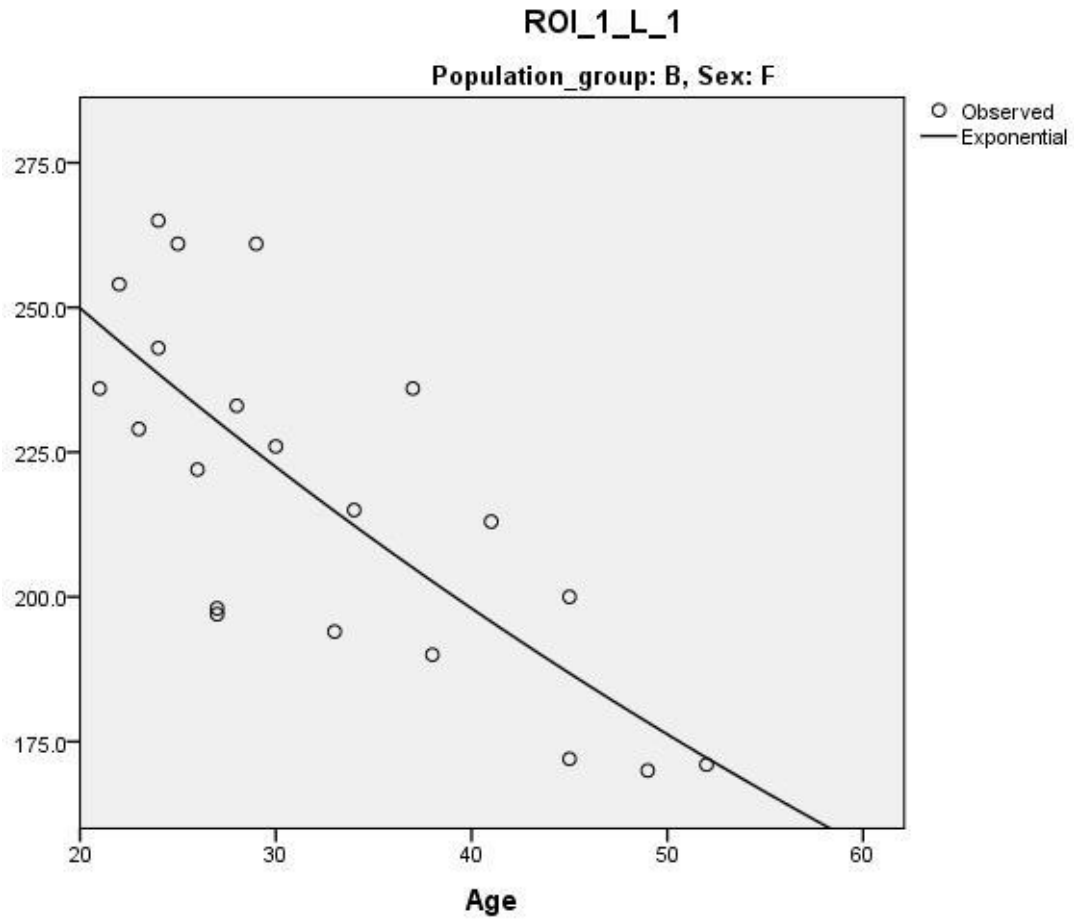


Figure 1: Figure showing the exponential regression line between the ROI1 of L1 and age for black females drawn from the scatterplot. The r^2 value is 0.61

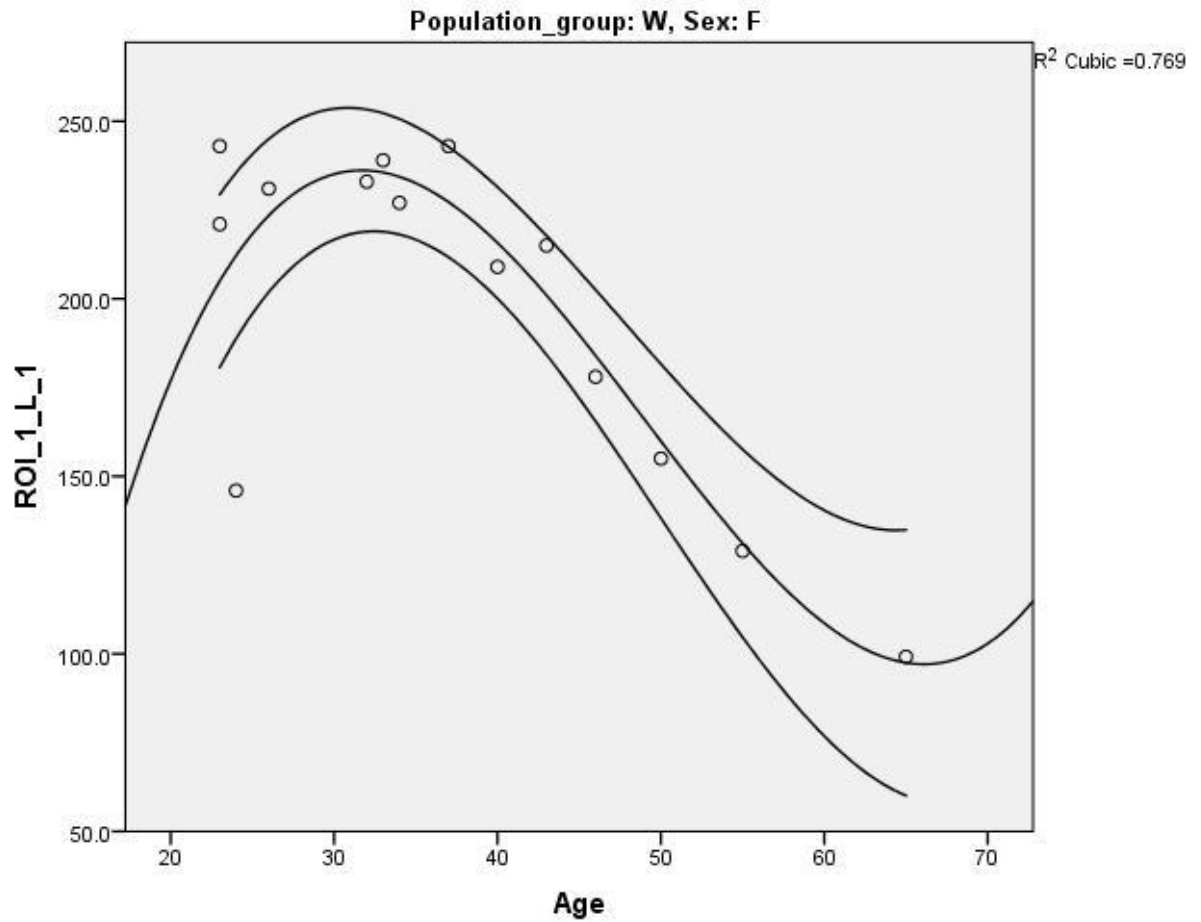


Figure 2: Figure showing the cubic regression line between the ROI1 of L1 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

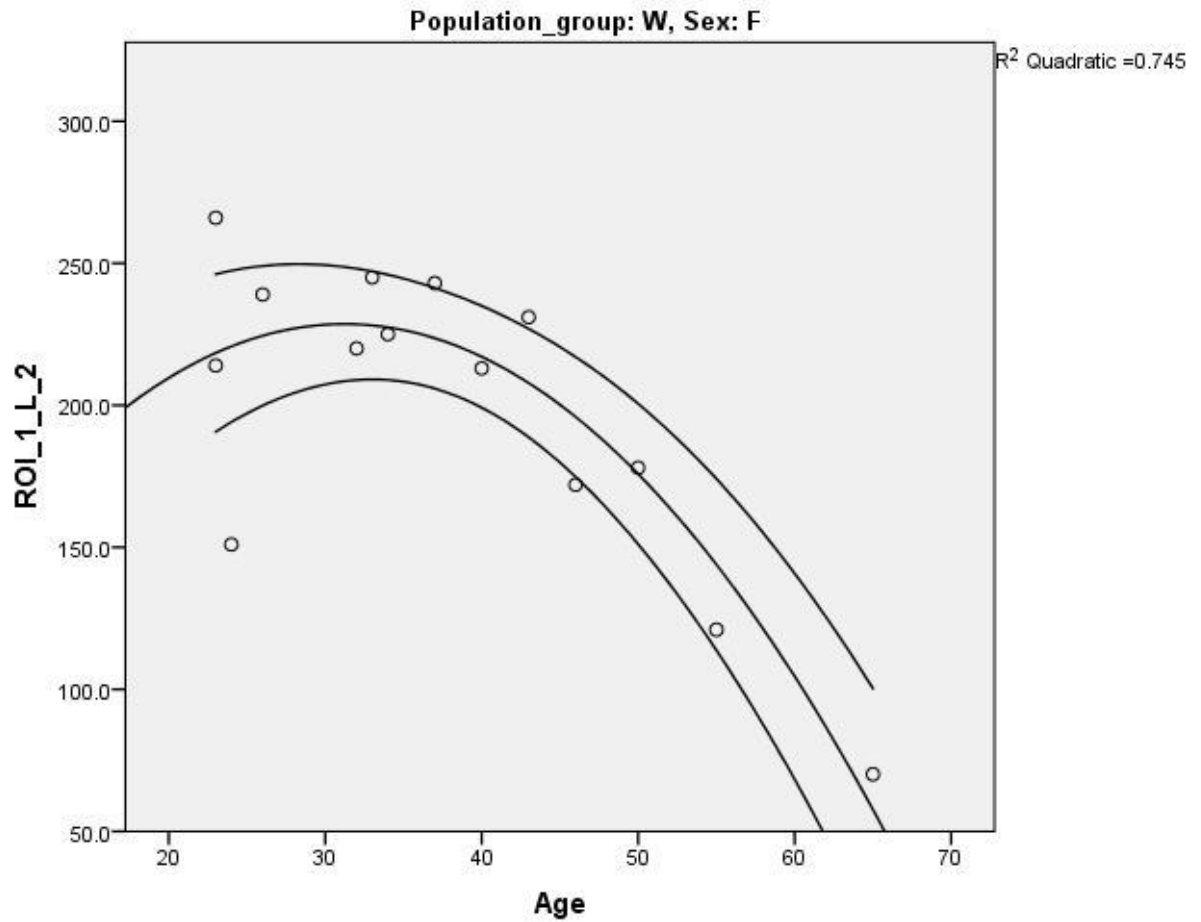


Figure 3: Figure showing the quadratic regression line between ROI1 of L2 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

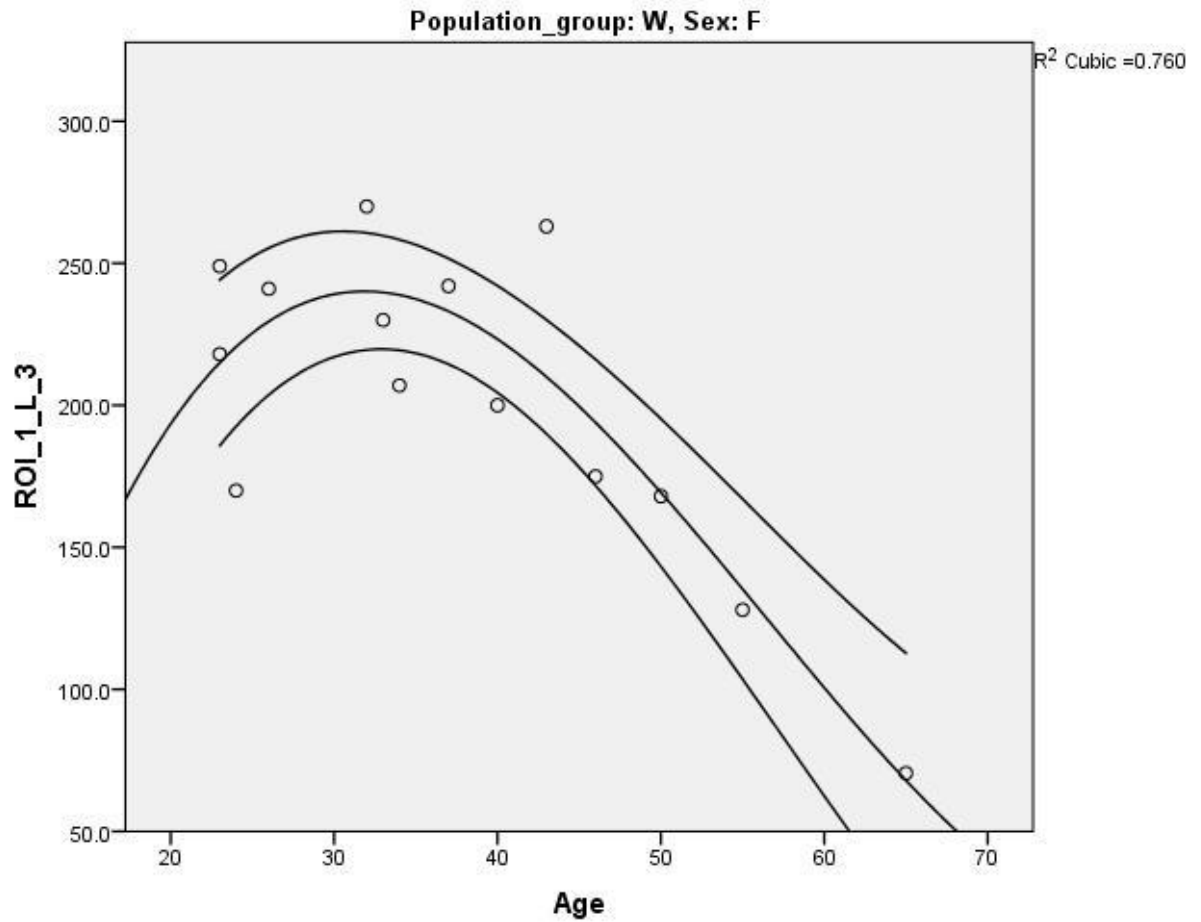


Figure 4: Figure showing the cubic regression line between ROI1 of L3 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

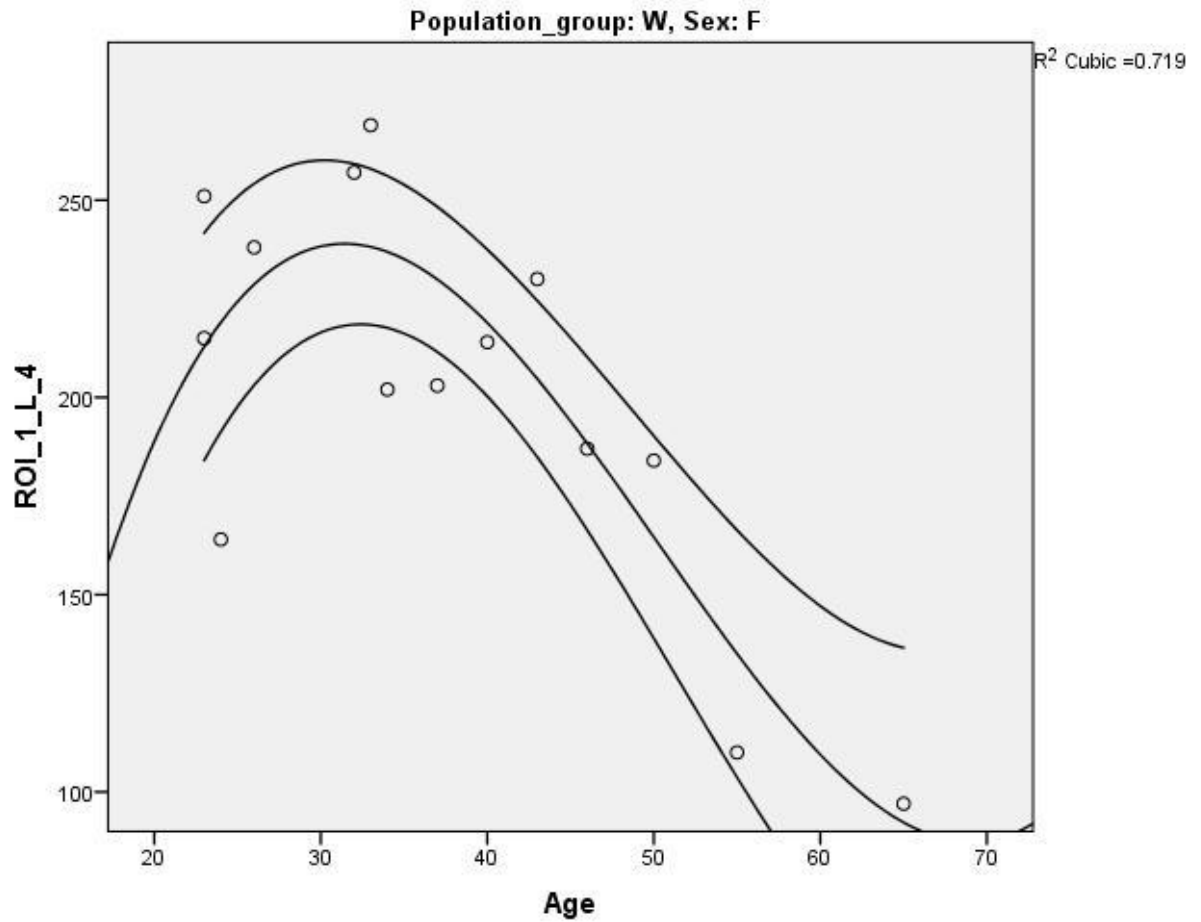


Figure 5: Figure showing the cubic regression line between ROI1 of L4 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

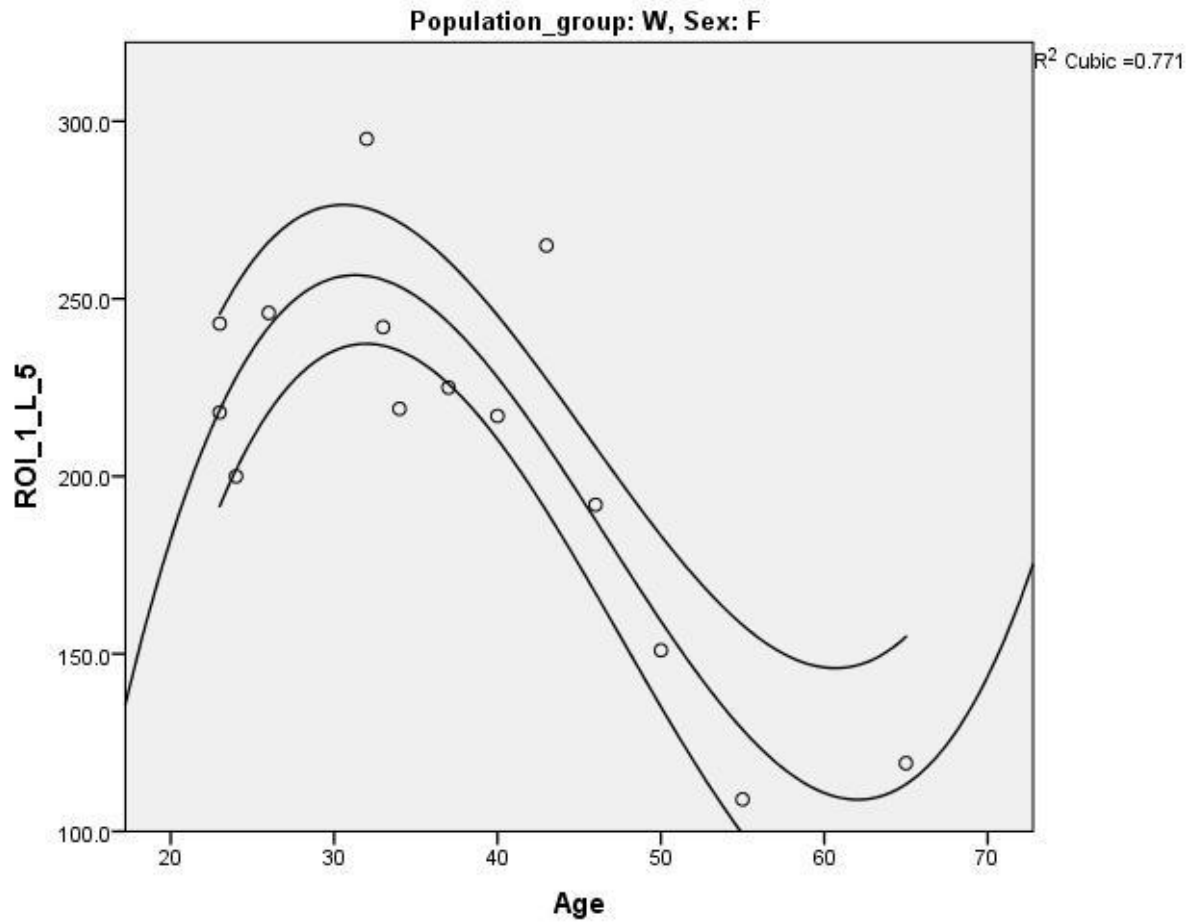


Figure 6: Figure showing the cubic regression line between ROI1 of L5 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

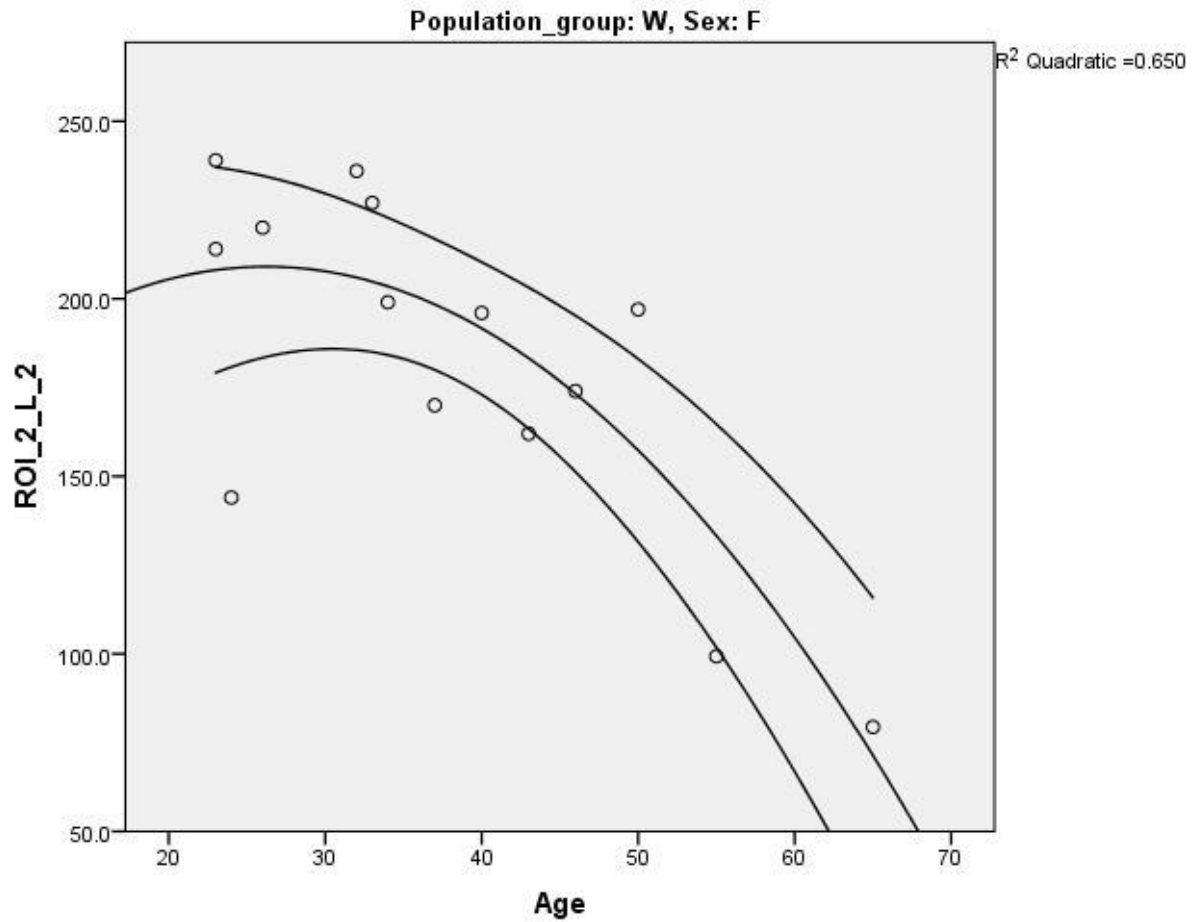


Figure 7: Figure showing the quadratic regression line between ROI2 of L2 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

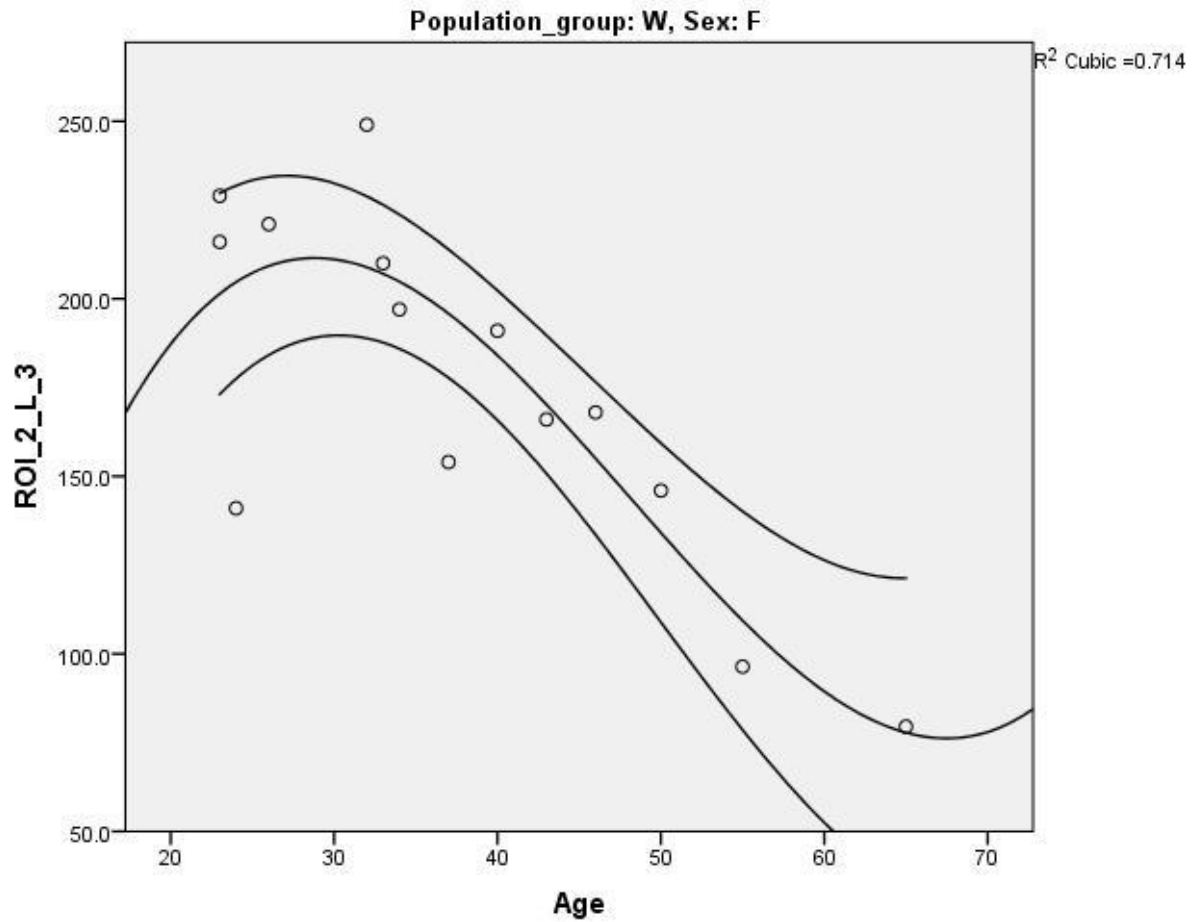


Figure 8: Figure showing the cubic regression line between ROI2 of L3 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

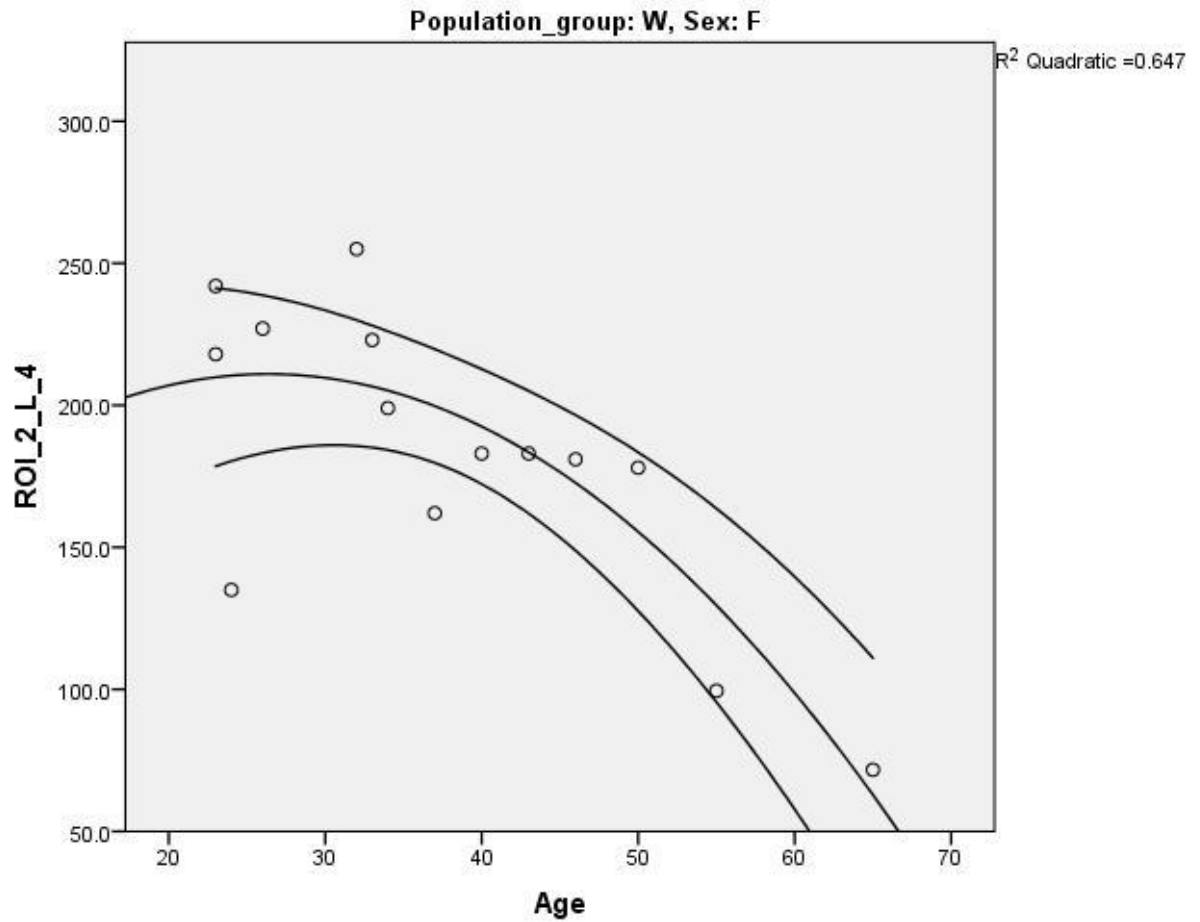


Figure 9: Figure showing the quadratic regression line between ROI2 of L4 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

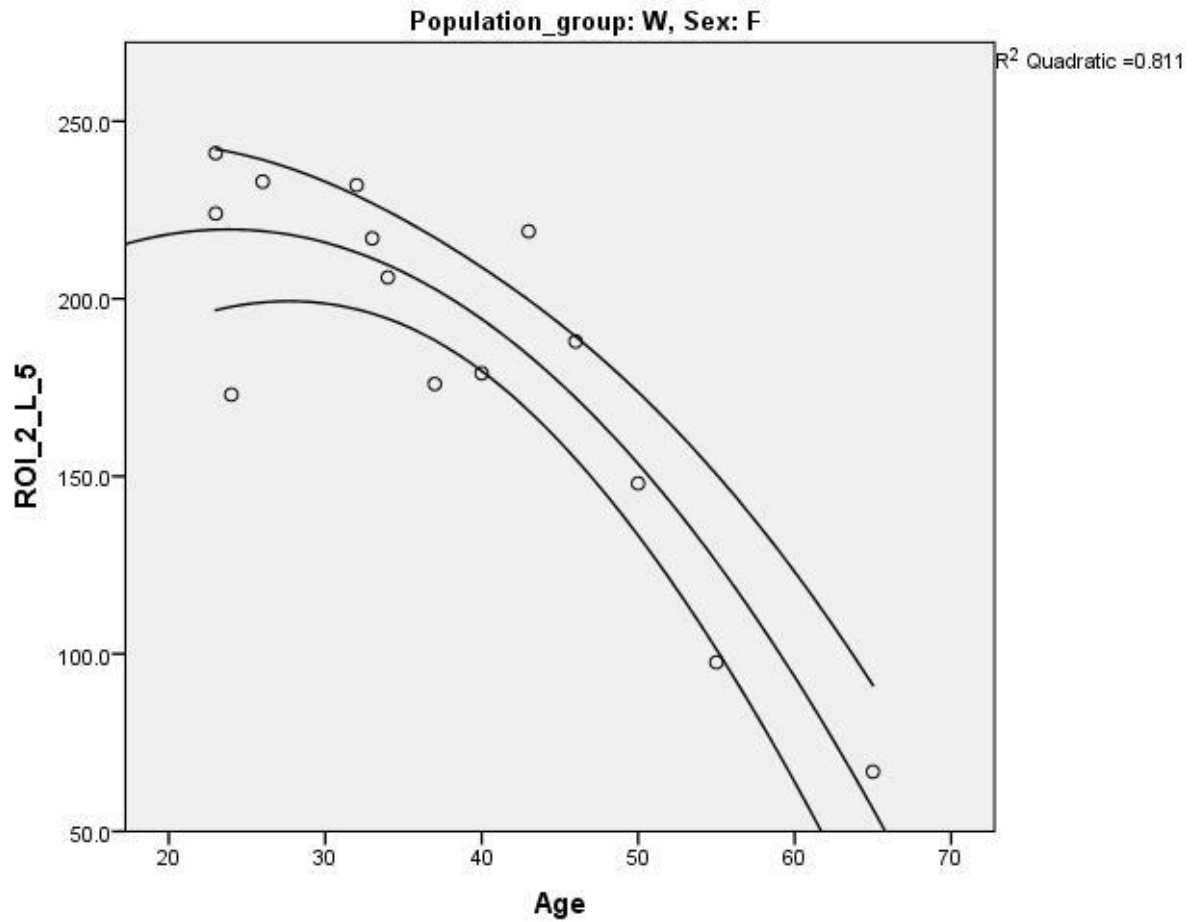


Figure 10: Figure showing the quadratic regression line between ROI2 of L5 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

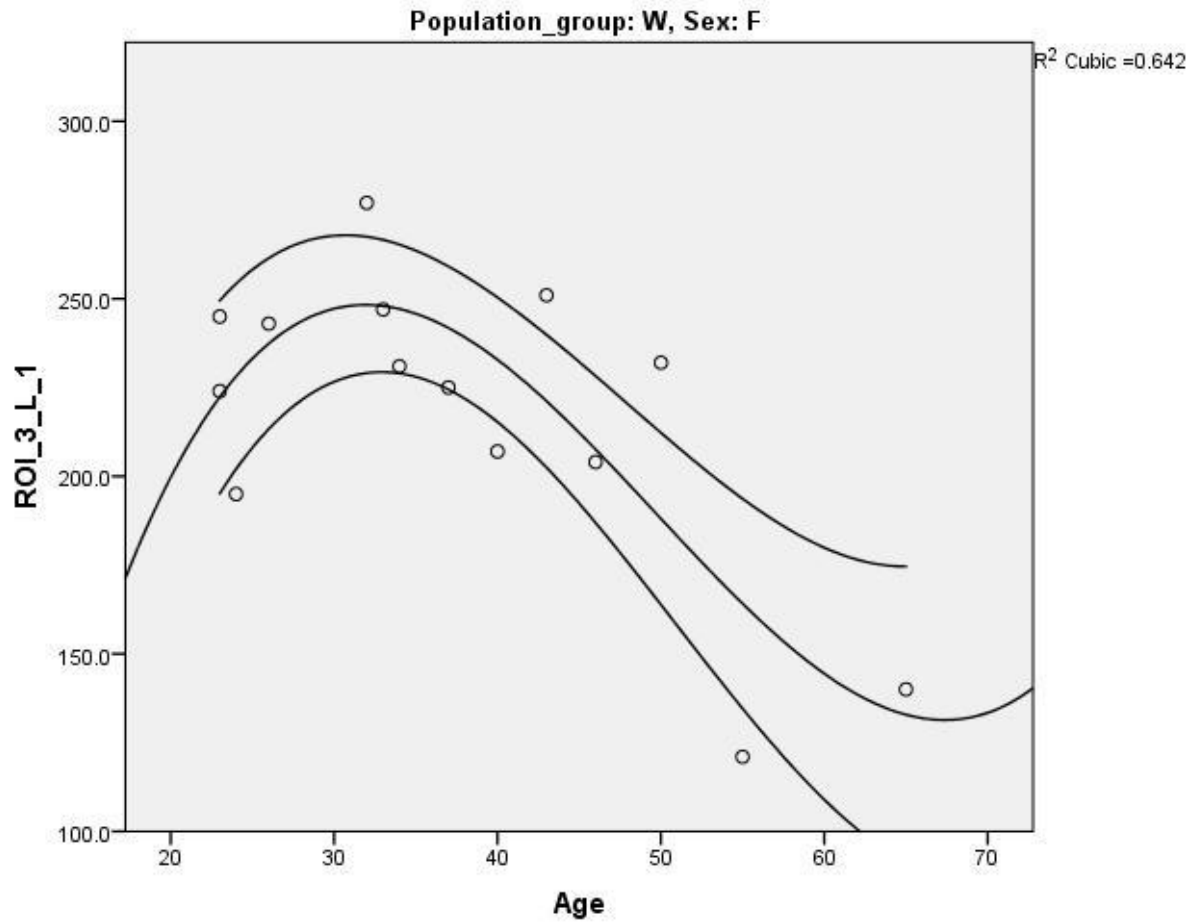


Figure 11: Figure showing the cubic regression line between ROI3 of L1 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

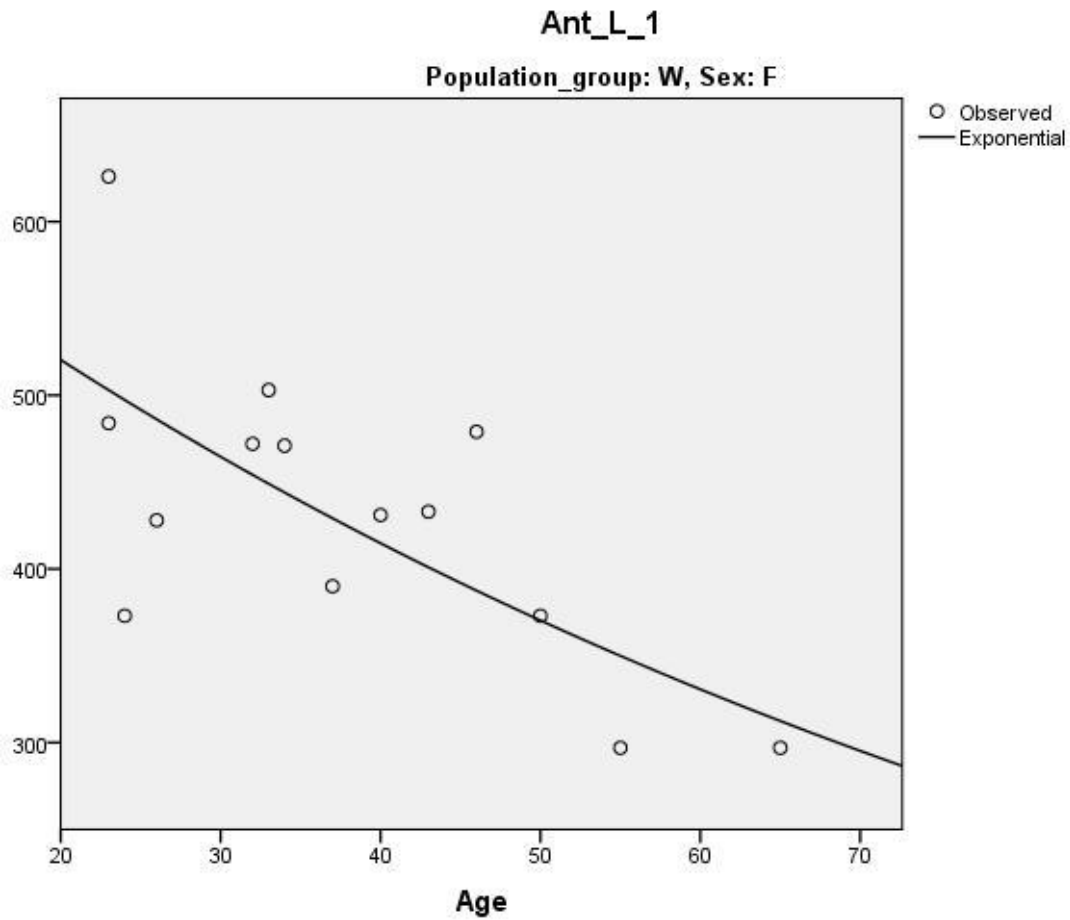


Figure 12: Figure showing the exponential regression line between the anterior border (Ant) of L1 and age for white females drawn from the scatterplot. The r^2 value is 0.52

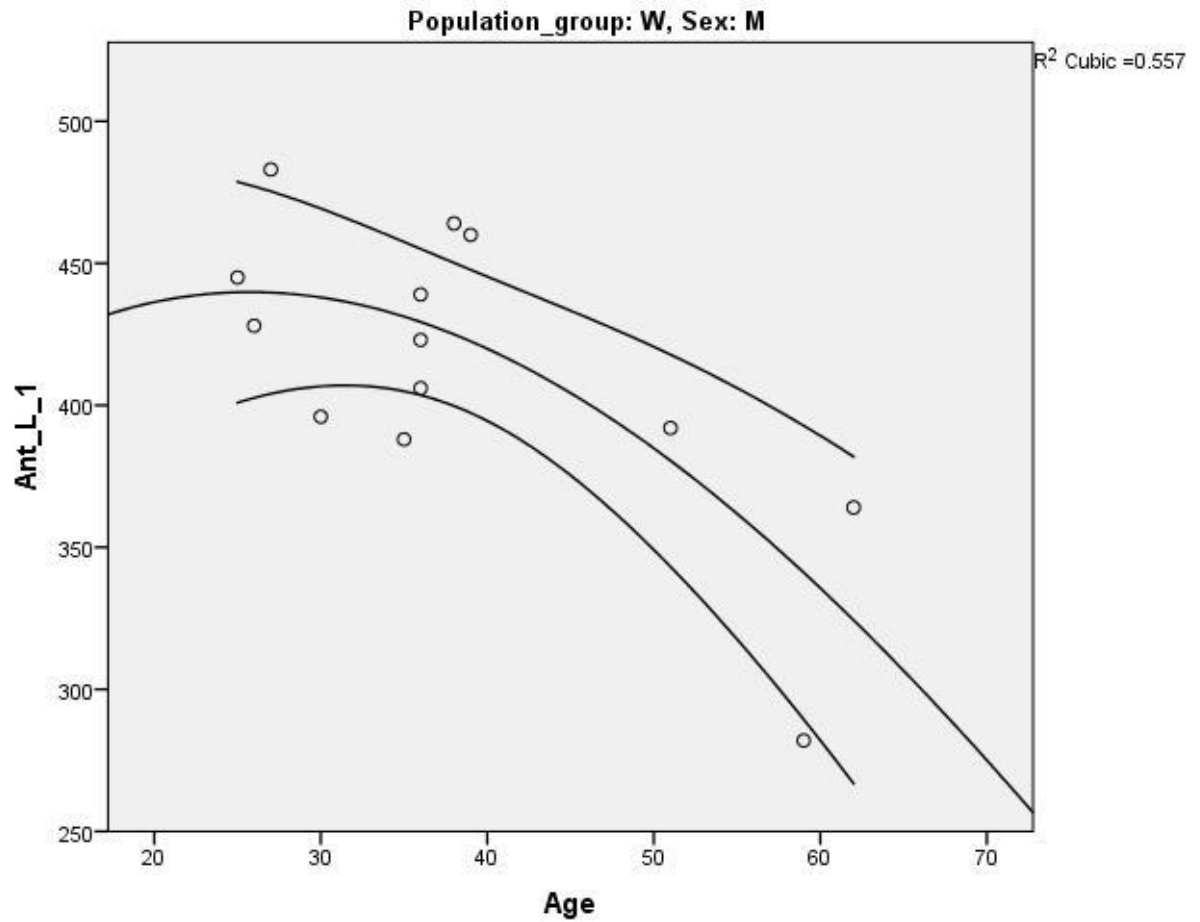


Figure 13: Figure showing the cubic regression line between the anterior border (Ant) of L1 and age for white males drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

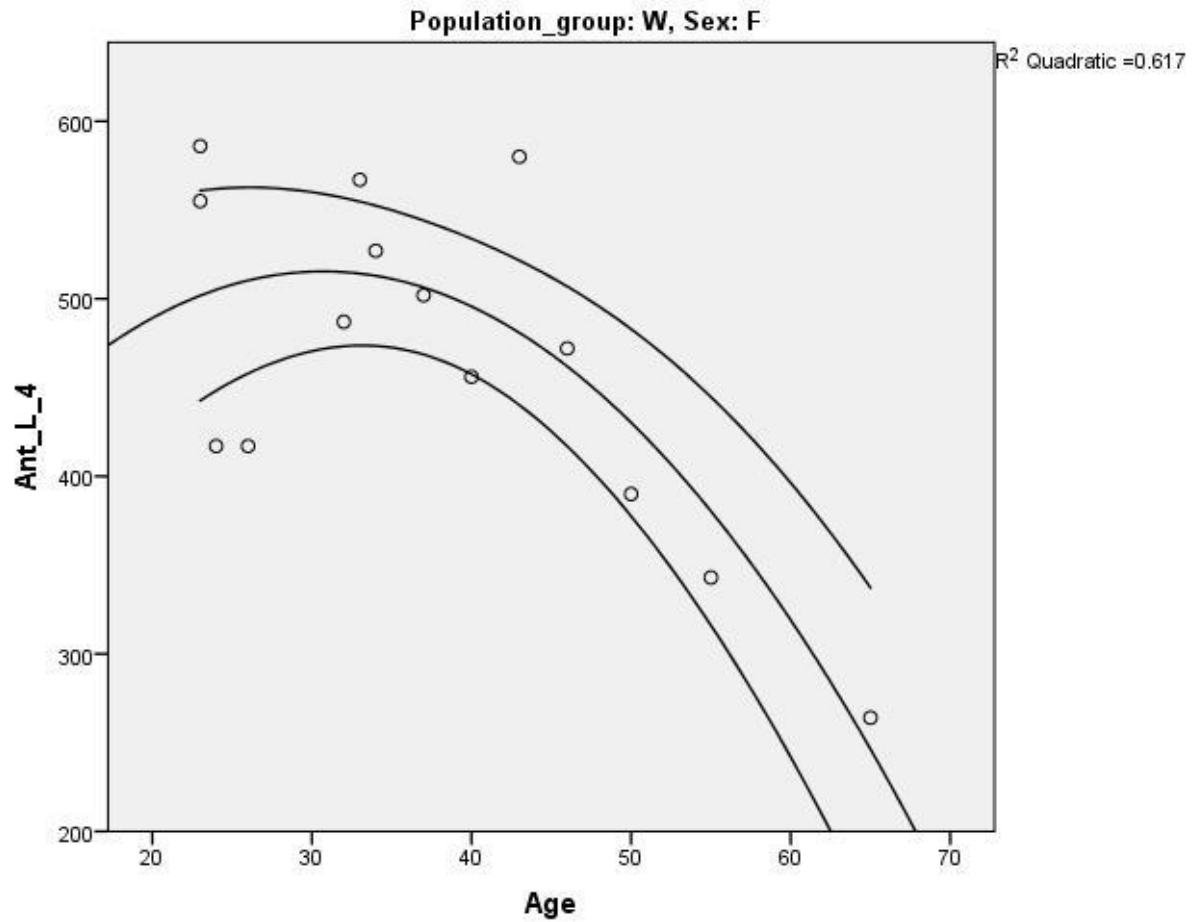


Figure 14: Figure showing the quadratic regression line between the anterior border (Ant) of L4 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

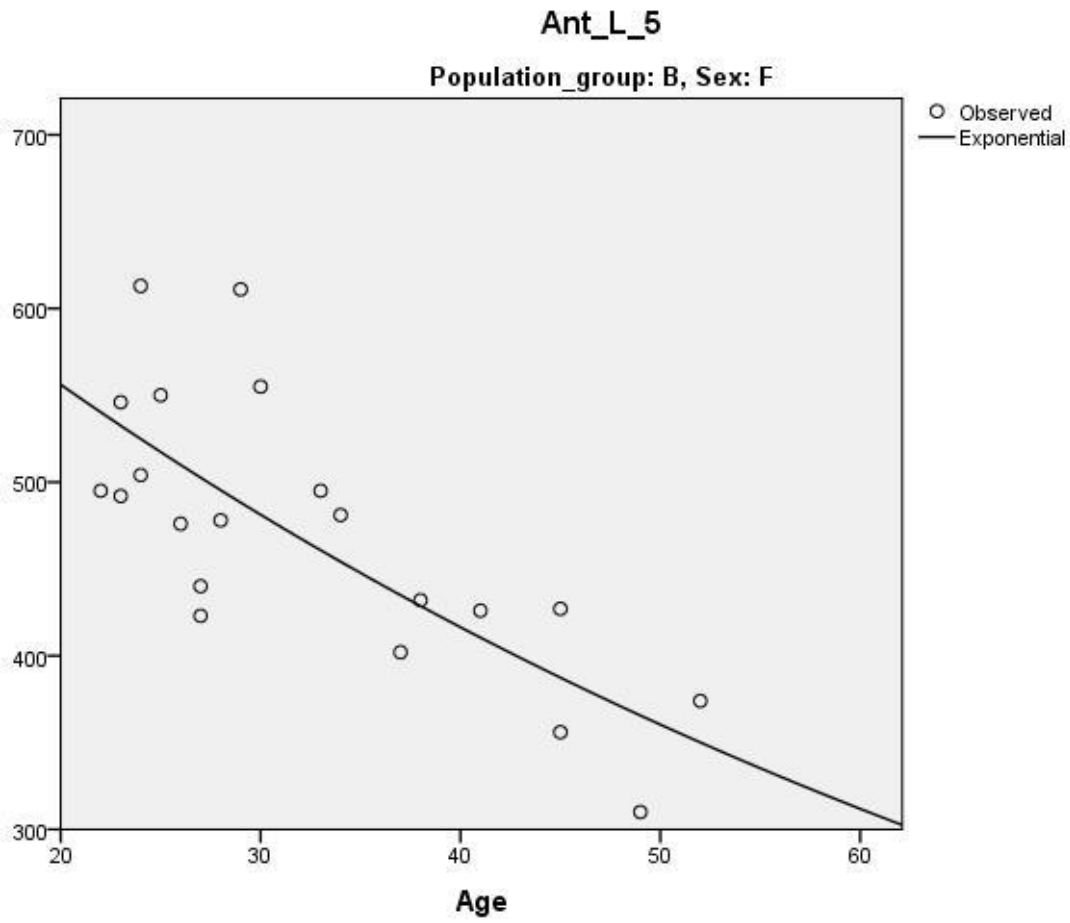


Figure 15: Figure showing the exponential regression line between the anterior border (Ant) of L5 and age for black females drawn from the scatterplot. The r^2 value is 0.61

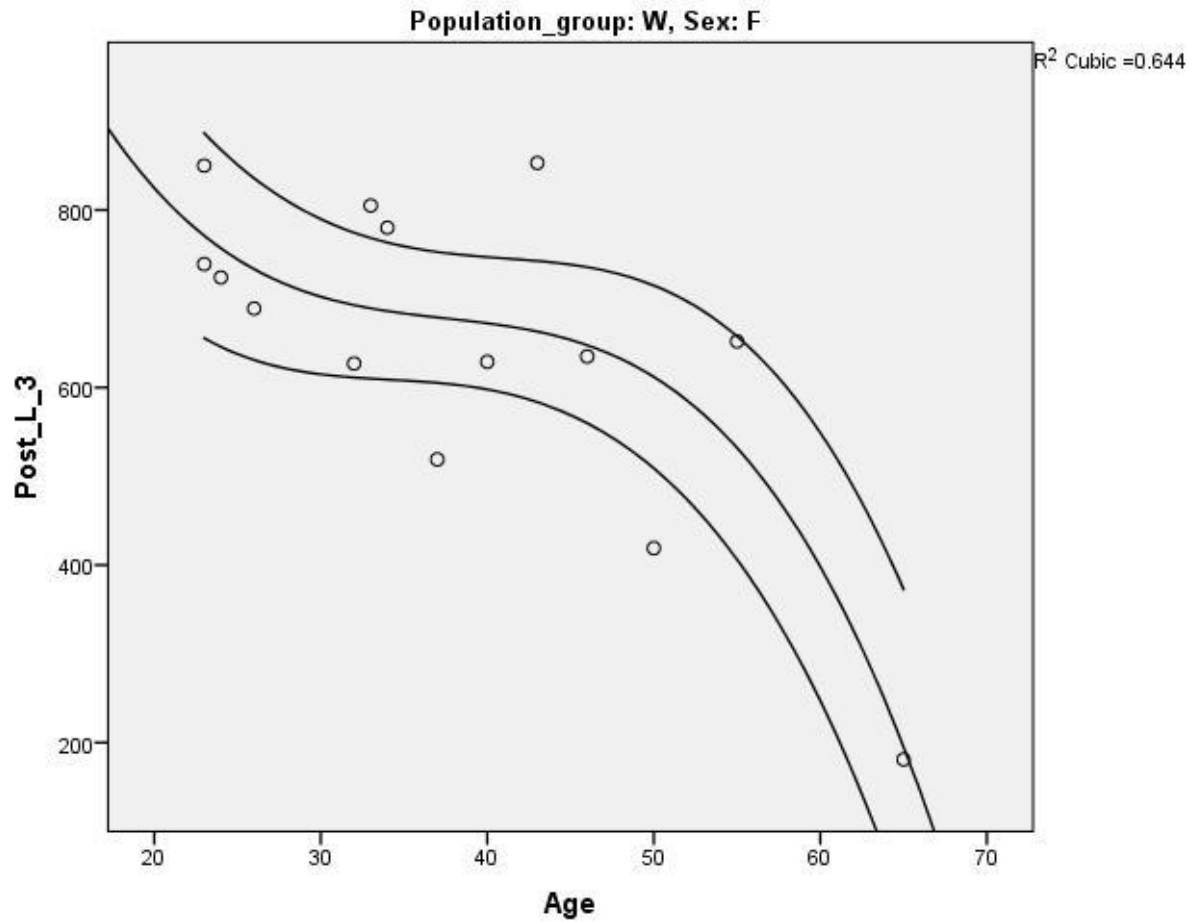


Figure 16: Figure showing the cubic regression line between the posterior border (Post) of L3 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

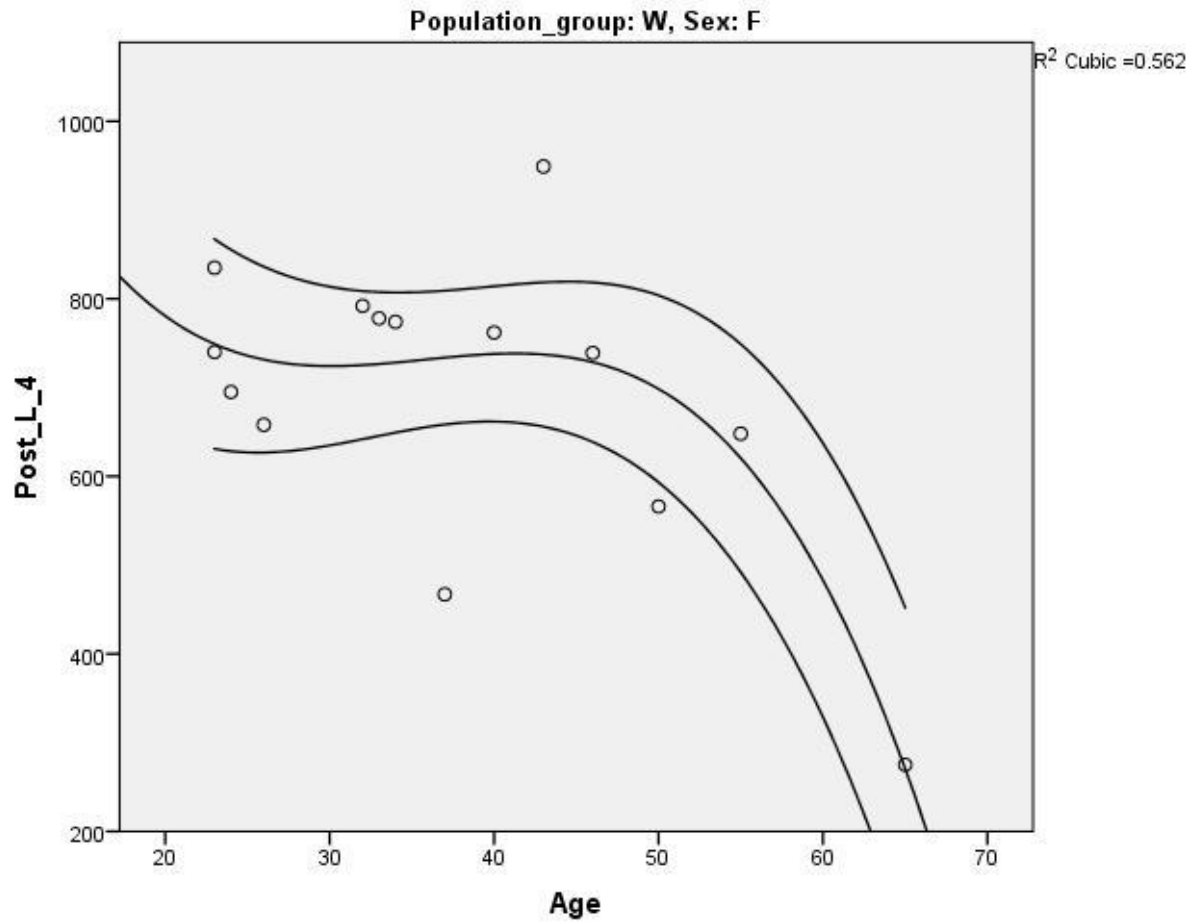


Figure 17: Figure showing the cubic regression line between the posterior border (Post) of L4 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

APPENDIX B.4: SCATTERPLOTS FOR AGE AND MORPHOMETRICS CORRELATIONS

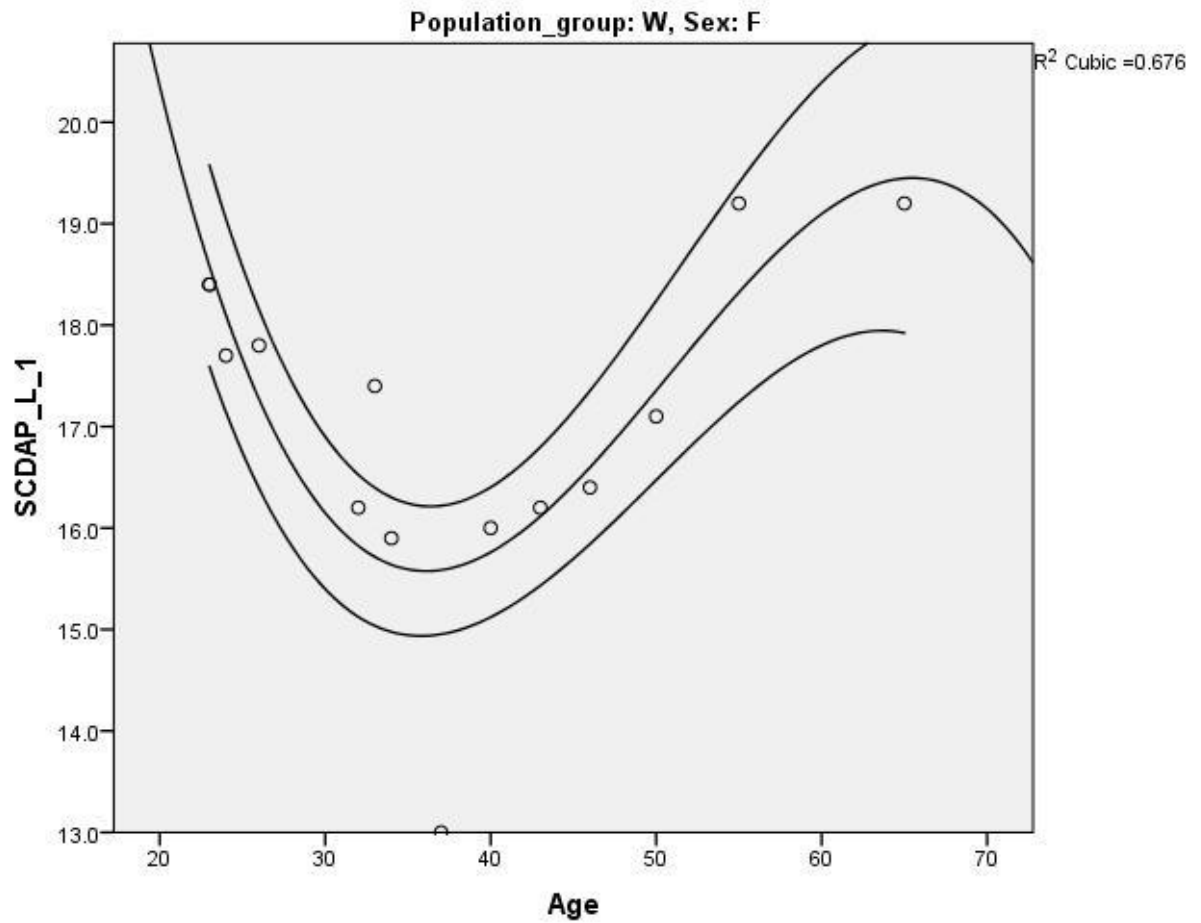


Figure 1: Figure showing the cubic regression line between the AP spinal canal diameter (SCDAP) of L1 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

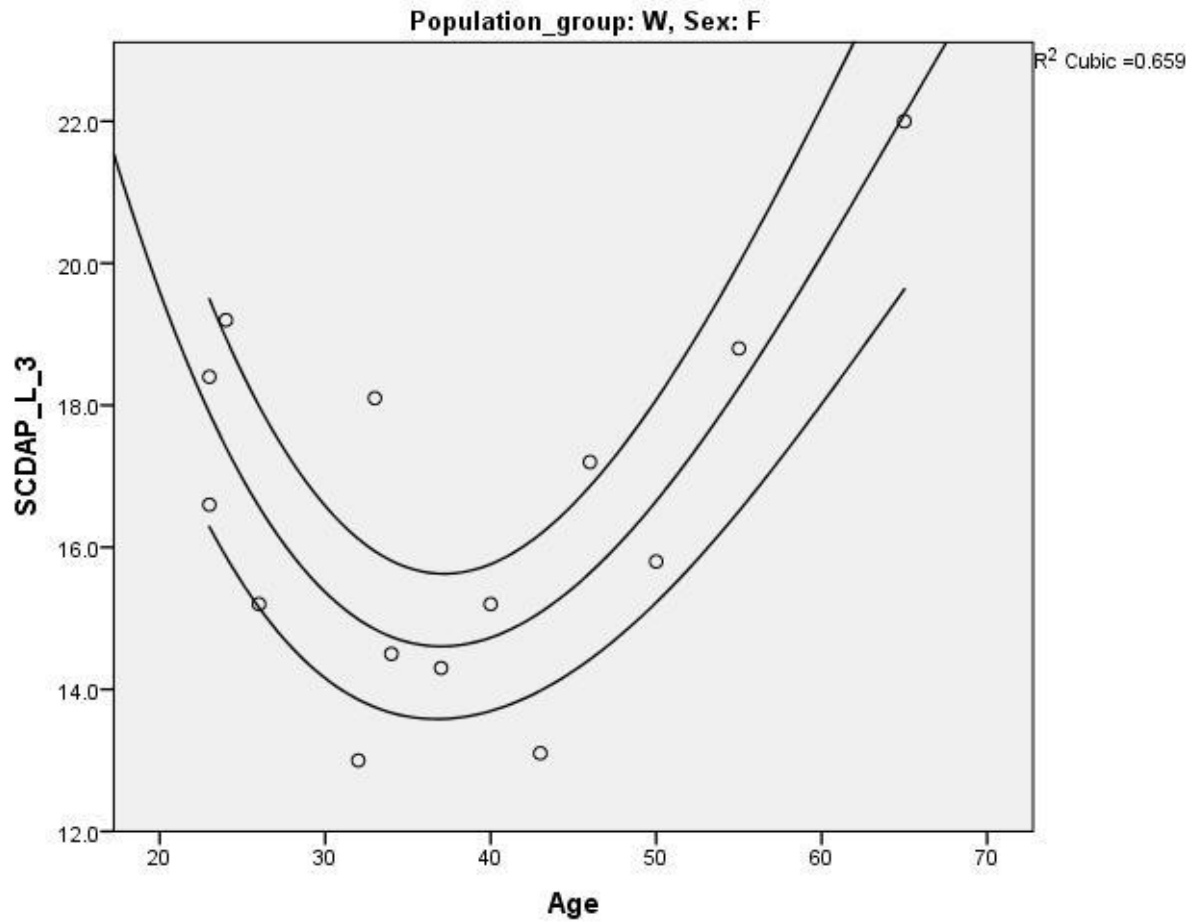


Figure 2: Figure showing the cubic regression line between the AP spinal canal diameter (SCDAP) of L3 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

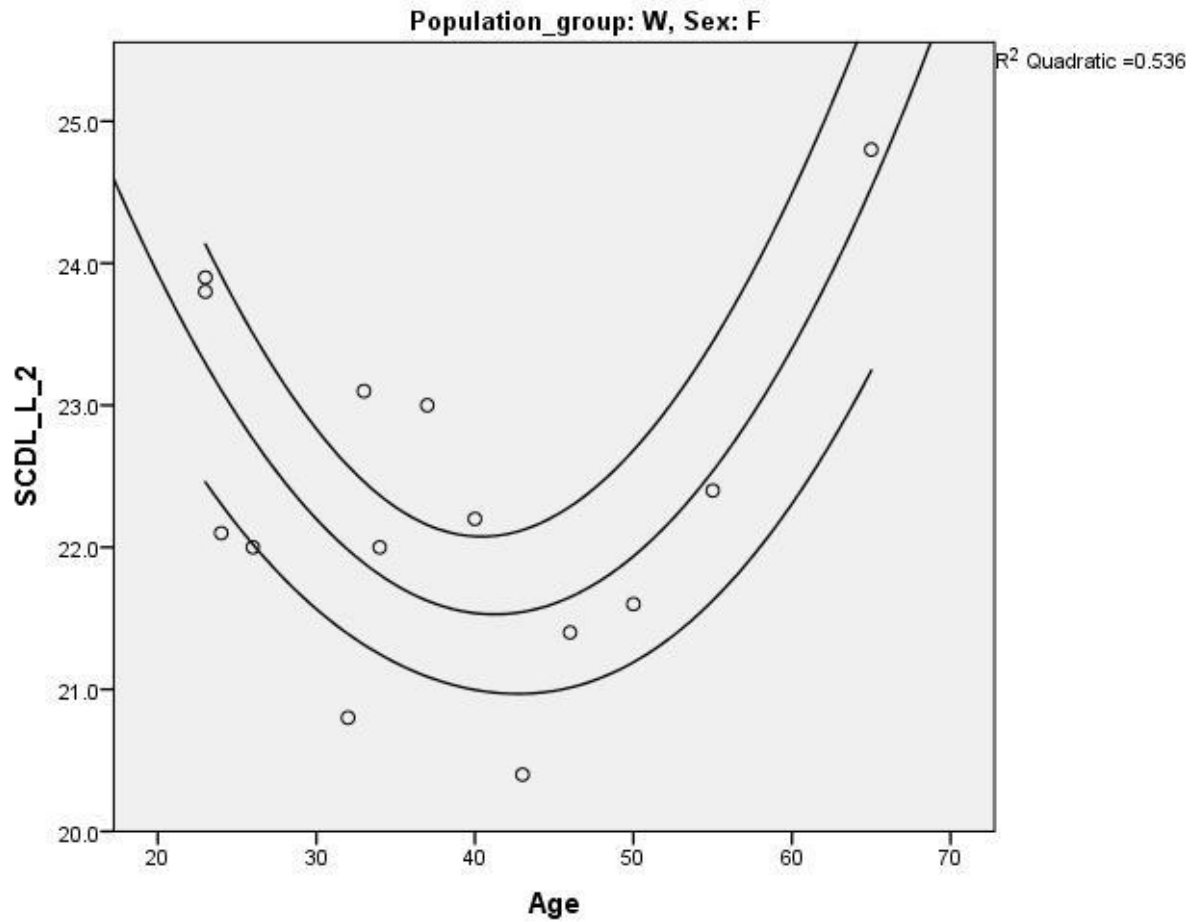


Figure 3: Figure showing the quadratic regression line between the lateral spinal canal diameter (SCDL) of L2 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

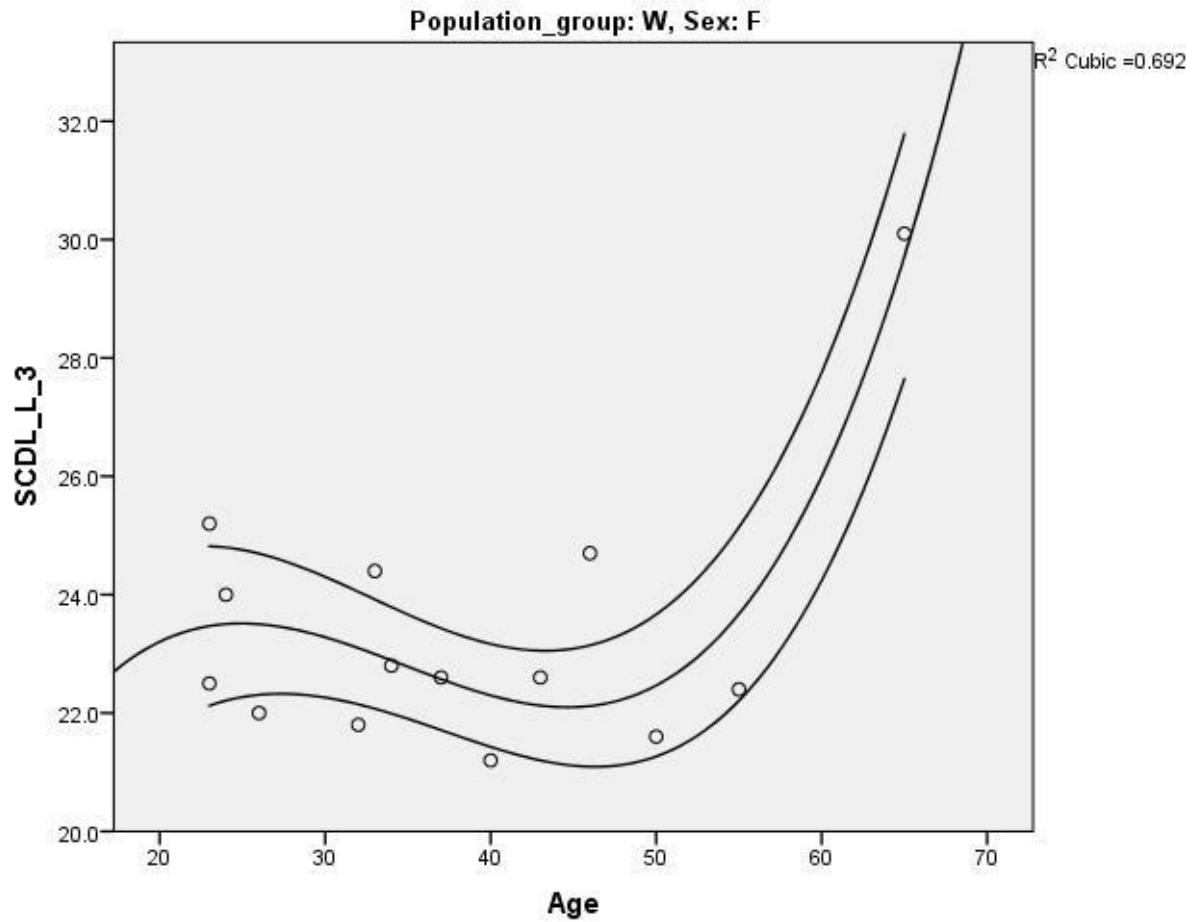


Figure 4: Figure showing the cubic regression line between the lateral spinal canal diameter (SCDL) of L3 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

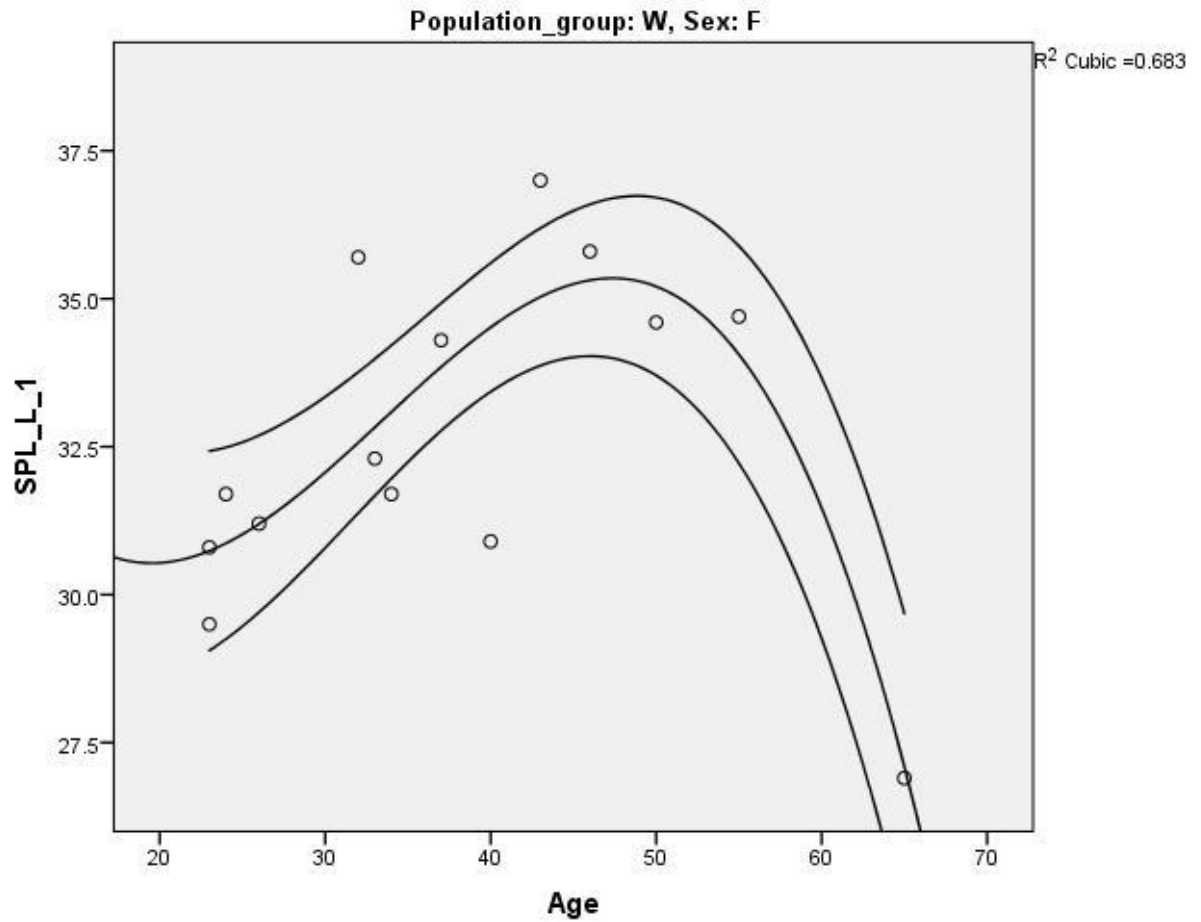


Figure 5: Figure showing the cubic regression line between the spinous process length (SPL) of L1 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

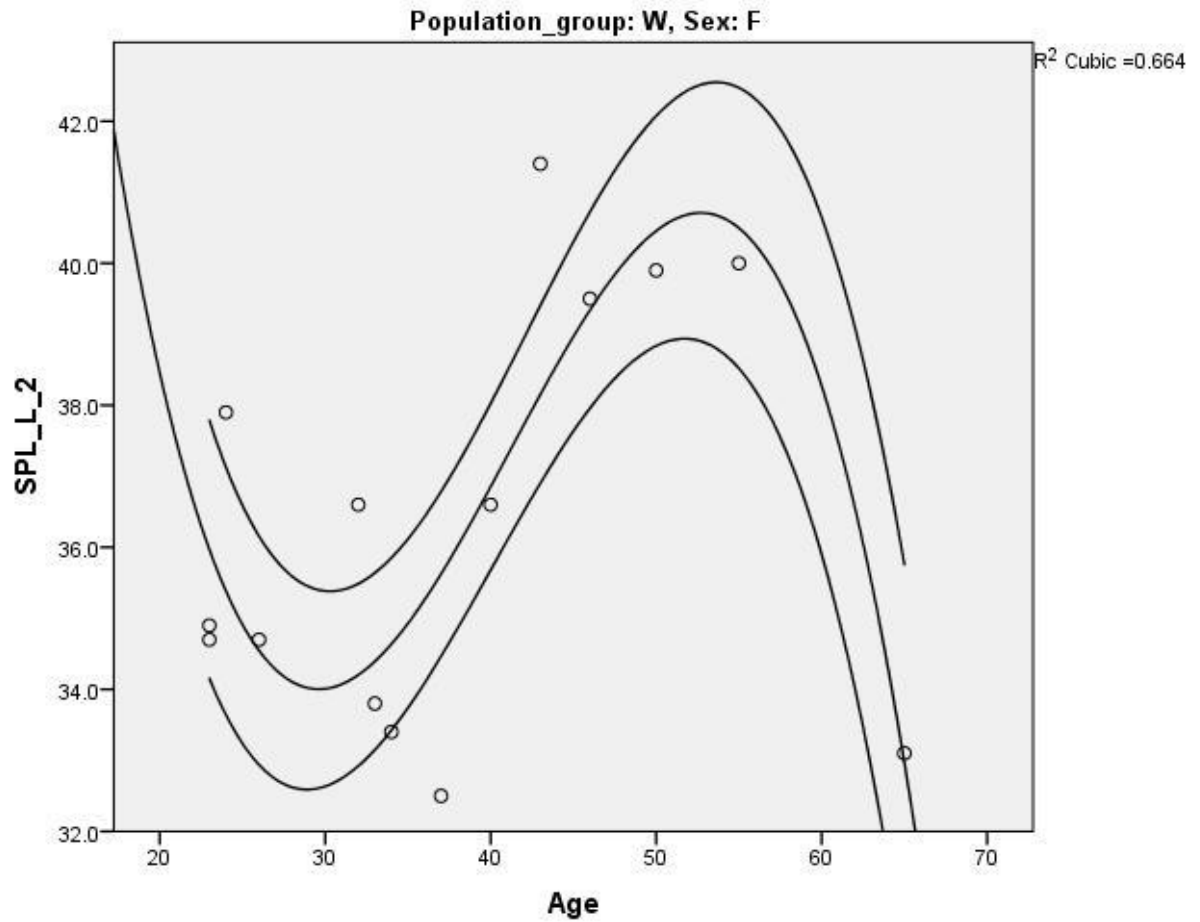


Figure 6: Figure showing the cubic regression line between the spinous process length (SPL) of L2 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

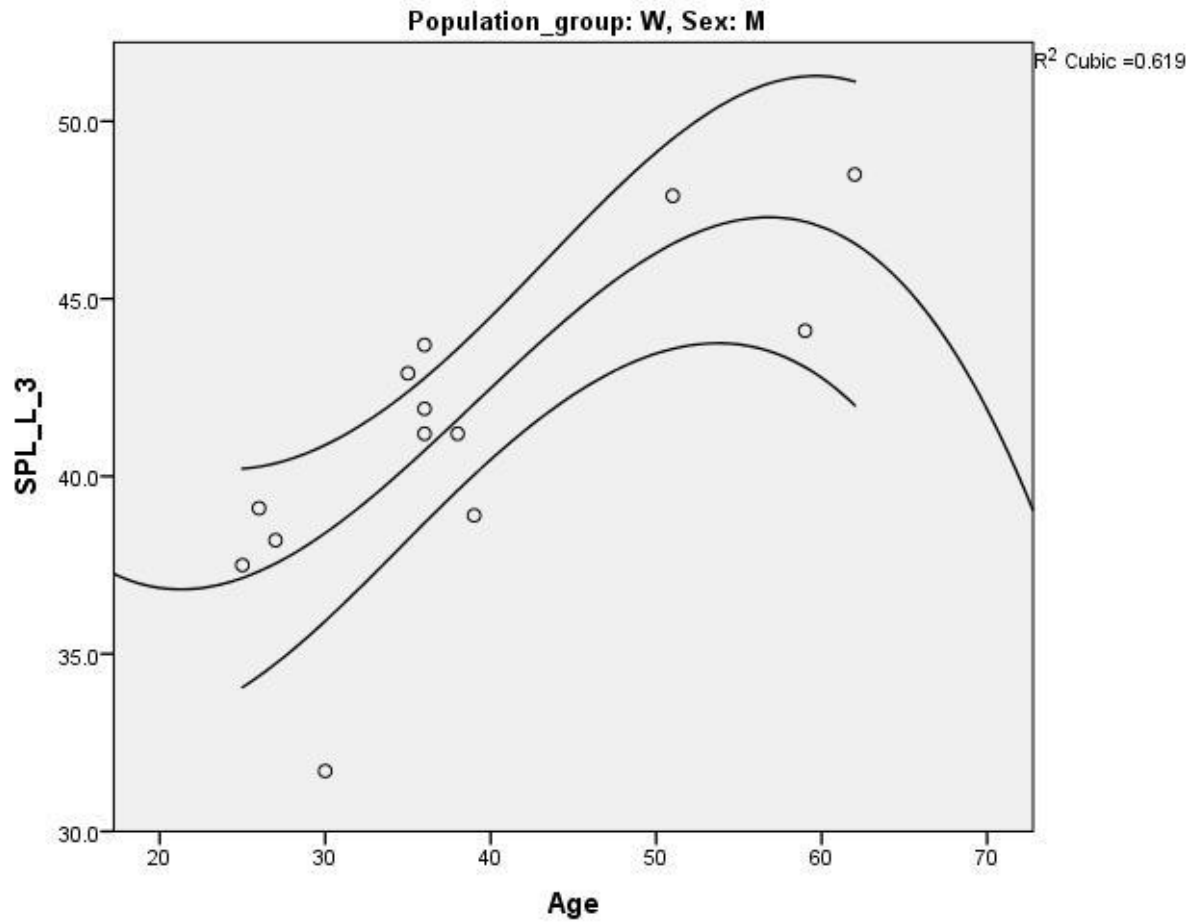


Figure 7: Figure showing the cubic regression line between the spinous process length (SPL) of L3 and age for white males drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

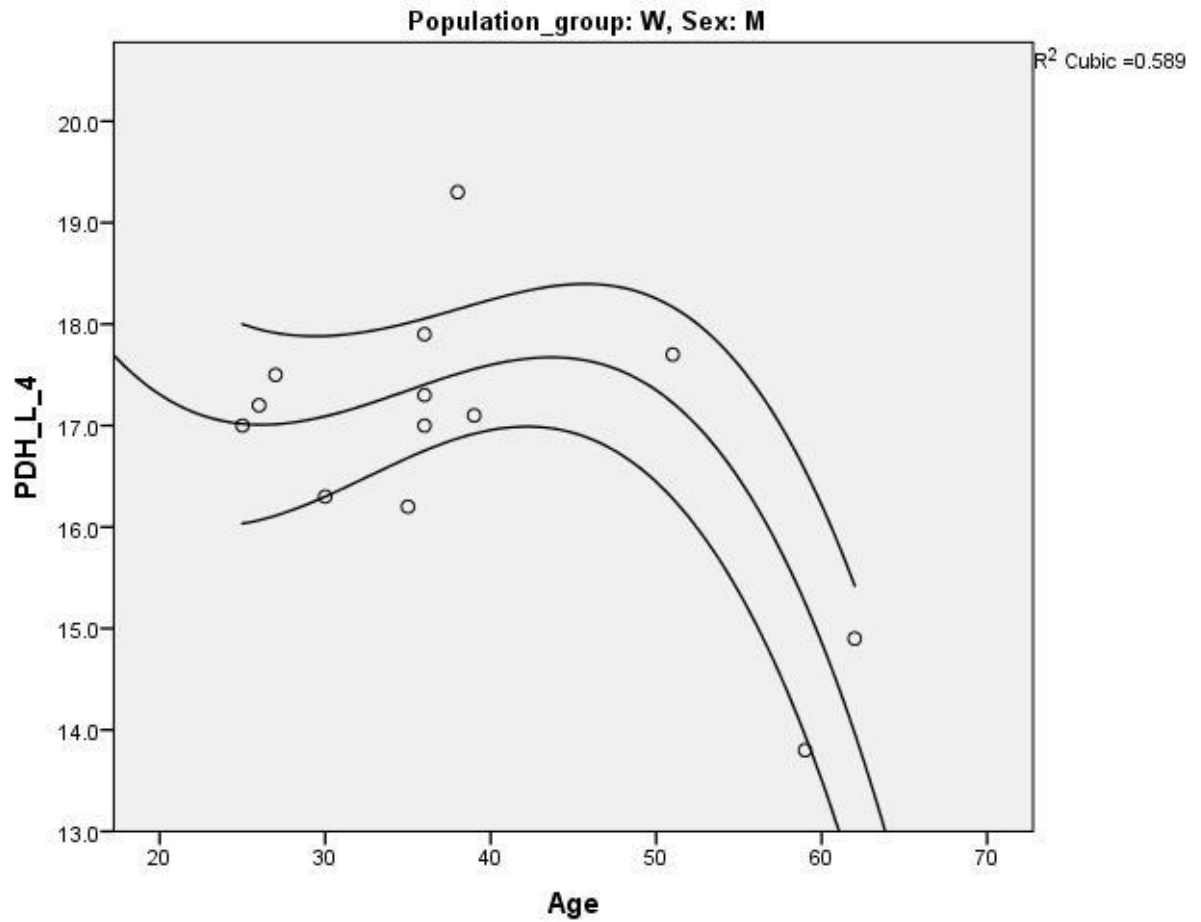


Figure 8: Figure showing the cubic regression line between the pedicle height (PDH) of L4 and age for white males drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

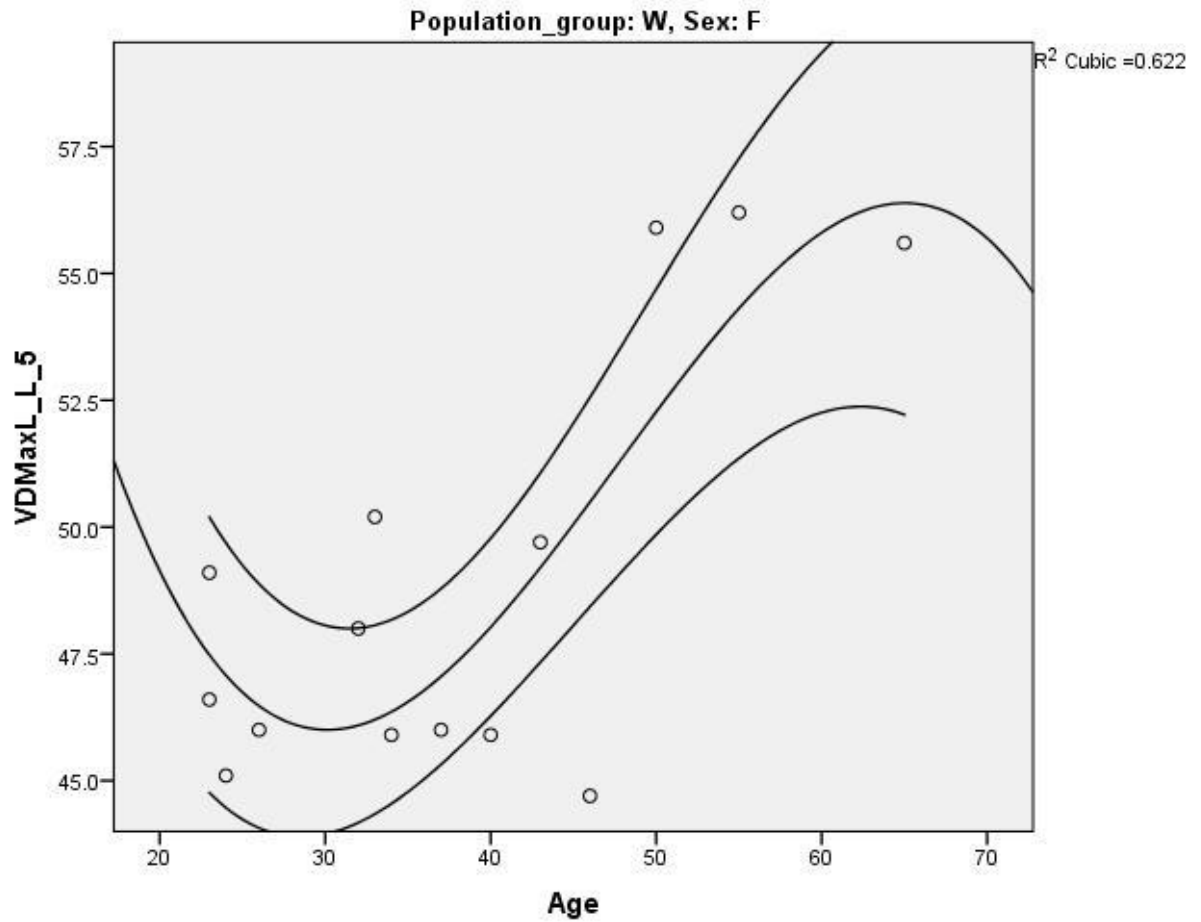


Figure 9: Figure showing the cubic regression line between the maximum lateral vertebral body diameter (VDMaxL) of L5 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

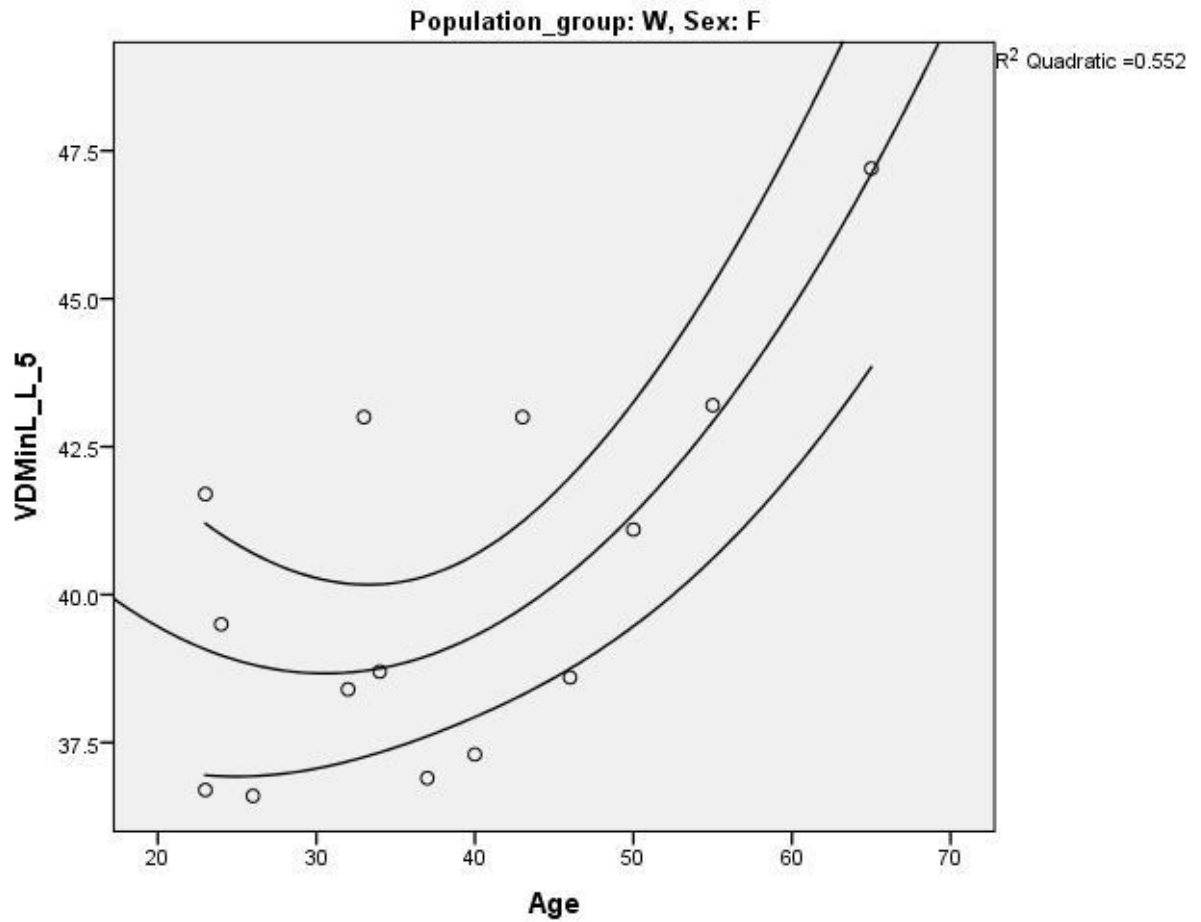


Figure 10: Figure showing the quadratic regression line between the minimum lateral vertebral body diameter (VDMinL) of L5 and age for white females drawn from the scatterplot along with the 95% Confidence interval (lines running parallel to the midline)

**APPENDIX C.1: RAW RESULTS FOR CORRELATION ANALYSIS
BETWEEN BMD AND LLA**

Table 1: Table indicating the r-squared values and associated p-values obtained from the regression analysis for medullary BMD

Variable	VL	P	Linear r ²	p- value	Logarithmic r ²	p- value	Quadratic r ²	p- value	Cubic r ²	p- value	Exponential r ²	p- value
ROI1	L1	BM	0.009	0.611	0.003	0.78	0.024	0.71	0.026	0.86	0.011	0.57
		BF	0.009	0.68	0.019	0.56	0.060	0.57	0.08	0.69	0.014	0.60
		WM	0.140	0.26	0.016	0.22	0.250	0.32	0.26	0.30	0.13	0.27
		WF	0.000	0.99	0.000	0.99	0.001	0.99	0.001	0.99	0.002	0.88
	L2	BM	0.015	0.50	0.011	0.57	0.015	0.80	0.027	0.86	0.019	0.46
		BF	0.006	0.74	0.005	0.75	0.006	0.94	0.045	0.85	0.004	0.79
		WM	0.218	0.15	0.222	0.14	0.227	0.36	0.230	0.35	0.211	0.16
		WF	0.000	0.99	0.000	0.97	0.002	0.99	0.002	0.99	0.008	0.76
	L3	BM	0.000	0.96	0.000	0.98	0.001	0.99	0.053	0.80	0.000	0.99
		BF	0.003	0.76	0.007	0.65	0.014	0.82	0.032	0.82	0.004	0.74
		WM	0.016	0.68	0.033	0.55	0.223	0.28	0.223	0.28	0.031	0.56
		WF	0.002	0.87	0.001	0.94	0.032	0.84	0.027	0.86	0.016	0.67
	L4	BM	0.074	0.13	0.075	0.12	0.076	0.31	0.077	0.50	0.082	0.11
		BF	0.034	0.41	0.027	0.47	0.037	0.70	0.040	0.86	0.038	0.39
		WM	0.080	0.35	0.119	0.25	0.370	0.10	0.370	0.10	0.100	0.29
		WF	0.000	0.95	0.001	0.92	0.005	0.97	0.005	0.97	0.003	0.85
	L5	BM	0.096	0.10	0.088	0.11	0.097	0.25	0.105	0.40	0.102	0.09
		BF	0.023	0.51	0.032	0.43	0.040	0.68	0.041	0.86	0.014	0.60
		WM	0.040	0.51	0.039	0.52	0.040	0.82	0.040	0.81	0.044	0.49
		WF	0.000	0.95	0.002	0.89	0.034	0.83	0.034	0.83	0.000	0.96
ROI2	L1	BM	0.036	0.29	0.047	0.23	0.046	0.49	0.057	0.63	0.041	0.26
		BF	0.064	0.26	0.049	0.32	0.072	0.49	0.114	0.52	0.074	0.22
		WM	0.006	0.80	0.007	0.79	0.007	0.97	0.007	0.97	0.001	0.94
		WF	0.001	0.94	0.002	0.87	0.043	0.79	0.043	0.79	0.001	0.91
	L2	BM	0.040	0.26	0.052	0.20	0.054	0.43	0.062	0.59	0.035	0.29
		BF	0.099	0.16	0.077	0.21	0.110	0.33	0.138	0.43	0.119	0.12
		WM	0.003	0.86	0.005	0.52	0.009	0.96	0.009	0.96	0.000	0.95
		WF	0.023	0.60	0.029	0.56	0.056	0.73	0.057	0.73	0.040	0.49
	L3	BM	0.027	0.36	0.042	0.25	0.055	0.43	0.059	0.62	0.026	0.37

Variable	VL	P	Linear r ²	p- value	Logarithmic r ²	p- value	Quadratic r ²	p- value	Cubic r ²	p- value	Exponential r ²	p- value
		BF	0.064	0.26	0.049	0.32	0.074	0.48	0.100	0.58	0.077	0.21
		WM	0.007	0.78	0.007	0.79	0.008	0.96	0.010	0.95	0.014	0.70
		WF	0.004	0.84	0.007	0.78	0.041	0.79	0.043	0.78	0.011	0.72
	L4	BM	0.057	0.18	0.076	0.12	0.084	0.27	0.093	0.41	0.052	0.20
		BF	0.082	0.20	0.077	0.21	0.082	0.44	0.089	0.63	0.087	0.18
		WM	0.001	0.92	0.000	0.99	0.040	0.81	0.030	0.86	0.002	0.88
		WF	0.011	0.72	0.013	0.70	0.021	0.89	0.022	0.89	0.024	0.60
	L5	BM	0.049	0.24	0.055	0.21	0.060	0.43	0.061	0.65	0.043	0.27
		BF	0.082	0.21	0.090	0.19	0.093	0.42	0.108	0.57	0.101	0.16
		WM	0.001	0.91	0.002	0.88	0.002	0.99	0.004	0.98	0.000	0.97
		WF	0.001	0.94	0.000	0.95	0.001	0.99	0.001	0.99	0.012	0.71
	ROI3	L1	BM	0.074	0.12	0.056	0.19	0.088	0.25	0.088	0.44	0.083
BF			0.028	0.45	0.035	0.41	0.059	0.56	0.137	0.44	0.037	0.39
WM			0.152	0.19	0.085	0.14	0.269	0.21	0.269	0.21	0.155	0.18
WF			0.014	0.68	0.008	0.75	0.056	0.73	0.050	0.76	0.020	0.63
L2		BM	0.086	0.10	0.073	0.13	0.089	0.25	0.090	0.43	0.086	0.10
		BF	0.093	0.17	0.091	0.17	0.098	0.38	0.154	0.38	0.116	0.12
		WM	0.007	0.79	0.001	0.94	0.230	0.27	0.214	0.30	0.013	0.71
		WF	0.049	0.50	0.045	0.51	0.050	0.79	0.050	0.79	0.050	0.48
L3		BM	0.134	0.04	0.098	0.08	0.159	0.07	0.160	0.16	0.141	0.03
		BF	0.030	0.44	0.044	0.35	0.091	0.40	0.150	0.39	0.041	0.37
		WM	0.016	0.68	0.029	0.58	0.191	0.35	0.198	0.33	0.014	0.70
		WF	0.137	0.26	0.153	0.24	0.205	0.40	0.224	0.36	0.124	0.29
L4		BM	0.135	0.04	0.108	0.06	0.142	0.10	0.143	0.21	0.141	0.03
		BF	0.160	0.07	0.154	0.07	0.165	0.18	0.241	0.16	0.183	0.05
		WM	0.057	0.43	0.083	0.34	0.214	0.30	0.214	0.30	0.066	0.40
		WF	0.000	0.94	0.004	0.83	0.138	0.44	0.141	0.43	0.000	0.97
L5		BM	0.220	0.01	0.181	0.02	0.227	0.03	0.235	0.07	0.218	0.01
		BF	0.112	0.14	0.106	0.15	0.113	0.34	0.158	0.39	0.137	0.10
		WM	0.013	0.71	0.011	0.73	0.013	0.94	0.015	0.93	0.006	0.80
		WF	0.059	0.40	0.079	0.33	0.182	0.33	0.182	0.33	0.037	0.51
<p><i>Key: VL = Vertebral level; P = Population group; r² = The r² value; BM = Black male; BF = Black female; WM = White male; WF = White female; ROI1 = Region of interest 1; ROI2 = Region of interest 2; ROI3 = Region of interest 3</i></p>												

Table 2: Table indicating the r-squared values and associated p-values obtained from the regression analysis for endplate BMD

Variable	VL	P	Linear r ²	p- value	Logarithmic r ²	p- value	Quadratic r ²	p- value	Cubic r ²	p- value	Exponential r ²	p- value
SEP	L1	BM	0.041	0.26	0.026	0.37	0.061	0.37	0.066	0.57	0.027	0.36
		BF	0.000	0.95	0.000	0.99	0.003	0.97	0.004	0.99	0.000	0.99
		WM	0.019	0.67	0.015	0.71	0.028	0.88	0.024	0.90	0.013	0.73
		WF	0.020	0.63	0.017	0.65	0.026	0.87	0.026	0.86	0.010	0.73
	L2	BM	0.000	0.71	0.004	0.72	0.006	0.92	0.008	0.97	0.004	0.72
		BF	0.006	0.72	0.002	0.84	0.018	0.84	0.055	0.79	0.008	0.69
		WM	0.016	0.68	0.008	0.77	0.084	0.65	0.069	0.70	0.016	0.68
		WF	0.105	0.26	0.110	0.25	0.119	0.50	0.123	0.49	0.113	0.24
	L3	BM	0.001	0.86	0.003	0.76	0.006	0.91	0.009	0.97	0.000	0.93
		BF	0.001	0.89	0.001	0.88	0.001	0.99	0.002	0.99	0.003	0.80
		WM	0.010	0.75	0.004	0.85	0.110	0.56	0.101	0.59	0.014	0.70
		WF	0.083	0.32	0.088	0.30	0.095	0.58	0.099	0.56	0.082	0.32
	L4	BM	0.002	0.81	0.000	0.92	0.011	0.92	0.015	0.93	0.004	0.72
		BF	0.018	0.55	0.022	0.51	0.030	0.75	0.034	0.89	0.022	0.51
		WM	0.119	0.25	0.112	0.26	0.128	0.50	0.133	0.49	0.099	0.29
		WF	0.052	0.43	0.055	0.42	0.060	0.71	0.061	0.71	0.042	0.48
	L5	BM	0.001	0.89	0.000	0.99	0.004	0.94	0.005	0.99	0.002	0.79
		BF	0.002	0.83	0.001	0.89	0.009	0.92	0.012	0.98	0.005	0.76
		WM	0.001	0.91	0.002	0.88	0.030	0.86	0.038	0.83	0.001	0.91
		WF	0.095	0.28	0.107	0.26	0.128	0.47	0.131	0.46	0.077	0.34
IEP	L1	BM	0.034	0.31	0.056	0.19	0.094	0.23	0.094	0.41	0.027	0.36
		BF	0.000	0.95	0.001	0.87	0.019	0.84	0.023	0.93	0.004	0.78
		WM	0.014	0.70	0.010	0.74	0.024	0.89	0.022	0.90	0.008	0.77
		WF	0.011	0.72	0.012	0.71	0.015	0.92	0.015	0.92	0.012	0.71
	L2	BM	0.042	0.25	0.053	0.20	0.062	0.39	0.062	0.59	0.040	0.26
		BF	0.017	0.57	0.010	0.66	0.020	0.83	0.107	0.55	0.015	0.59
		WM	0.006	0.79	0.006	0.80	0.007	0.97	0.007	0.97	0.008	0.78
		WF	0.005	0.81	0.002	0.89	0.093	0.59	0.118	0.50	0.003	0.84
	L3	BM	0.090	0.10	0.073	0.14	0.090	0.25	0.171	0.15	0.098	0.08
		BF	0.007	0.72	0.010	0.65	0.012	0.90	0.012	0.91	0.005	0.76
		WM	0.010	0.74	0.018	0.67	0.092	0.62	0.093	0.61	0.017	0.67
		WF	0.000	0.99	0.000	0.94	0.040	0.80	0.046	0.77	0.001	0.90
	L4	BM	0.008	0.61	0.010	0.58	0.013	0.82	0.017	0.92	0.011	0.57
		BF	0.003	0.80	0.005	0.75	0.005	0.96	0.032	0.90	0.000	0.99

Variable	VL	P	Linear r ²	p- value	Logarithmic r ²	p- value	Quadratic r ²	p- value	Cubic r ²	p- value	Exponential r ²	p- value
		WM	0.006	0.81	0.004	0.84	0.018	0.92	0.019	0.91	0.012	0.72
		WF	0.230	0.08	0.264	0.06	0.361	0.09	0.375	0.08	0.199	0.11
	L5	BM	0.010	0.59	0.021	0.42	0.036	0.58	0.042	0.75	0.009	0.61
		BF	0.015	0.60	0.007	0.72	0.042	0.68	0.043	0.86	0.014	0.62
		WM	0.000	0.97	0.002	0.88	0.063	0.72	0.050	0.77	0.000	0.97
		WF	0.037	0.51	0.038	0.50	0.044	0.78	0.049	0.76	0.037	0.51
<p><i>Key: VL = Vertebral level; P = Population group; r² = The r² value; BM = Black male; BF = Black female; WM = White male; WF = White female; SEP = Superior endplate; IEP = Inferior endplate</i></p>												

Table 3: Table indicating the r-squared values and associated p-values obtained from the regression analysis for border BMD

Variable	VL	P	Linear r ²	p- value	Logarithmic r ²	p- value	Quadratic r ²	p- value	Cubic r ²	p- value	Exponential r ²	p- value
AB	L1	BM	0.019	0.44	0.018	0.46	0.019	0.75	0.020	0.90	0.018	0.45
		BF	0.066	0.25	0.100	0.15	0.156	0.20	0.157	0.37	0.057	0.29
		WM	0.005	0.83	0.011	0.73	0.069	0.70	0.069	0.70	0.013	0.71
		WF	0.004	0.82	0.003	0.85	0.009	0.95	0.008	0.96	0.001	0.93
	L2	BM	0.067	0.15	0.040	0.26	0.095	0.22	0.097	0.39	0.071	0.13
		BF	0.034	0.41	0.052	0.31	0.108	0.34	0.147	0.40	0.038	0.39
		WM	0.073	0.37	0.043	0.50	0.336	0.13	0.320	0.15	0.085	0.33
		WF	0.275	0.05	0.271	0.06	0.276	0.17	0.277	0.17	0.256	0.07
	L3	BM	0.036	0.29	0.025	0.38	0.054	0.43	0.084	0.50	0.040	0.27
		BF	0.061	0.27	0.082	0.20	0.139	0.24	0.251	0.15	0.070	0.23
		WM	0.000	0.94	0.007	0.79	0.249	0.24	0.225	0.28	0.000	0.97
		WF	0.220	0.09	0.202	0.11	0.228	0.24	0.228	0.24	0.207	0.10
	L4	BM	0.045	0.24	0.038	0.28	0.049	0.47	0.066	0.57	0.052	0.20
		BF	0.065	0.25	0.076	0.21	0.080	0.45	0.081	0.67	0.068	0.24
		WM	0.000	0.99	0.002	0.89	0.127	0.51	0.106	0.57	0.001	0.91
		WF	0.025	0.59	0.033	0.54	0.061	0.71	0.061	0.71	0.005	0.81
	L5	BM	0.121	0.05	0.086	0.10	0.138	0.12	0.152	0.20	0.130	0.04
		BF	0.043	0.37	0.063	0.27	0.110	0.35	0.131	0.48	0.054	0.31
		WM	0.017	0.67	0.018	0.66	0.021	0.90	0.024	0.89	0.021	0.64
		WF	0.241	0.08	0.253	0.07	0.364	0.19	0.267	0.18	0.207	0.10
PB	L1	BM	0.002	0.80	0.003	0.77	0.003	0.96	0.005	0.99	0.122	0.73
		BF	0.114	0.12	0.087	0.18	0.140	0.24	0.140	0.43	0.098	0.16
		WM	0.239	0.09	0.235	0.09	0.245	0.25	0.252	0.23	0.253	0.08

Variable	VL	P	Linear r ²	p- value	Logarithmic r ²	p- value	Quadratic r ²	p- value	Cubic r ²	p- value	Exponential r ²	p- value
		WF	0.008	0.76	0.008	0.77	0.010	0.95	0.012	0.94	0.017	0.66
	L2	BM	0.000	0.94	0.000	0.95	0.016	0.79	0.033	0.80	0.000	0.96
		BF	0.043	0.35	0.042	0.36	0.043	0.66	0.056	0.79	0.048	0.33
		WM	0.205	0.12	0.228	0.10	0.237	0.26	0.237	0.26	0.215	0.11
		WF	0.021	0.62	0.029	0.56	0.069	0.68	0.069	0.67	0.001	0.93
	L3	BM	0.008	0.62	0.003	0.77	0.019	0.75	0.022	0.88	0.013	0.52
		BF	0.041	0.36	0.040	0.37	0.042	0.67	0.048	0.82	0.049	0.32
		WM	0.064	0.40	0.075	0.36	0.085	0.64	0.085	0.64	0.074	0.37
		WF	0.059	0.40	0.054	0.42	0.073	0.66	0.082	0.63	0.003	0.84
	L4	BM	0.001	0.88	0.000	0.91	0.034	0.59	0.034	0.79	0.003	0.75
		BF	0.075	0.22	0.076	0.21	0.077	0.47	0.079	0.68	0.071	0.23
		WM	0.089	0.32	0.100	0.29	0.099	0.59	0.099	0.59	0.096	0.30
		WF	0.055	0.42	0.060	0.40	0.058	0.72	0.058	0.72	0.010	0.73
	L5	BM	0.033	0.32	0.015	0.50	0.073	0.33	0.074	0.54	0.051	0.21
		BF	0.001	0.91	0.006	0.74	0.066	0.54	0.074	0.72	0.000	0.94
		WM	0.003	0.87	0.007	0.79	0.042	0.81	0.042	0.81	0.012	0.72
		WF	0.269	0.06	0.234	0.08	0.343	0.10	0.339	0.10	0.175	0.14
<p><i>Key: VL = Vertebral level; P = Population group; r² = The r² value; BM = Black male; BF = Black female; WM = White male; WF = White female; AB = Anterior border; PB = Posterior border</i></p>												

**APPENDIX D.1: RAW RESULTS FOR LINEAR CORRELATION
ANALYSIS BETWEEN MORPHOMETRICS AND ANGLE**

Table 1: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for transverse- and spinous process lengths and angle

VL	P	TPL			SPL		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.119	0.014	0.509	0.144	0.021	0.424
	BF	0.387	0.150	0.075	0.304	0.092	0.169
	WM	0.159	0.025	0.603	0.146	0.021	0.634
	WF	-0.205	0.042	0.483	0.370	0.137	0.193
L2	BM	-0.064	0.004	0.724	0.131	0.017	0.467
	BF	0.300	0.090	0.175	0.321	0.103	0.145
	WM	0.261	0.068	0.390	0.239	0.057	0.432
	WF	-0.020	0.0004	0.947	0.061	0.004	0.837
L3	BM	-0.196	0.038	0.274	0.055	0.003	0.761
	BF	0.224	0.050	0.315	0.179	0.032	0.424
	WM	0.156	0.024	0.611	0.077	0.006	0.803
	WF	-0.406	0.165	0.150	-0.136	0.018	0.644
L4	BM	-0.098	0.010	0.588	-0.011	0.0001	0.952
	BF	-0.525	0.276	0.012	0.086	0.007	0.702
	WM	-0.147	0.022	0.631	0.038	0.001	0.902
	WF	-0.255	0.065	0.379	-0.220	0.048	0.449
L5	BM	-0.132	0.017	0.471	-0.175	0.031	0.339
	BF	-0.100	0.010	0.667	0.222	0.049	0.333
	WM	0.274	0.075	0.415	-0.273	0.075	0.368
	WF	-0.230	0.053	0.429	-0.407	0.166	0.149

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; TPL = Transverse process length; SPL = Spinous process length

Table 2: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for spinal canal dimensions and angle

VL	P	SCDAP			SCDL		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.156	0.024	0.386	-0.238	0.057	0.182
	BF	-0.210	0.044	0.348	0.474	0.225	0.026
	WM	-0.233	0.054	0.444	0.132	0.017	0.668
	WF	-0.396	0.157	0.161	-0.589	0.347	0.027
L2	BM	0.066	0.004	0.721	-0.213	0.045	0.234
	BF	0.282	0.080	0.215	0.374	0.140	0.087
	WM	-0.410	0.168	0.186	0.242	0.059	0.425
	WF	-0.086	0.007	0.769	-0.250	0.063	0.389
L3	BM	-0.002	0.000004	0.993	-0.221	0.049	0.216
	BF	0.043	0.002	0.848	0.300	0.090	0.175
	WM	0.173	0.030	0.573	0.115	0.013	0.708
	WF	-0.188	0.035	0.769	-0.251	0.063	0.387
L4	BM	0.030	0.001	0.870	-0.134	0.018	0.459
	BF	0.066	0.004	0.770	-0.052	0.003	0.818
	WM	-0.020	0.0009	0.948	-0.087	0.008	0.777
	WF	-0.154	0.024	0.599	-0.061	0.004	0.835
L5	BM	0.046	0.002	0.804	-0.088	0.008	0.631
	BF	0.273	0.075	0.300	-0.238	0.057	0.299
	WM	0.165	0.027	0.590	-0.053	0.003	0.864
	WF	0.077	0.006	0.793	0.032	0.001	0.914
<p><i>Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; SCDAP = Spinal canal AP diameter; SCDL = Spinal canal lateral diameter</i></p>							

Table 3: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for pedicle dimensions and angle

VL	P	PDH			PDDL		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.049	0.002	0.787	-0.207	0.043	0.248
	BF	0.050	0.003	0.827	0.245	0.060	0.271
	WM	-0.049	0.002	0.873	0.293	0.086	0.331
	WF	-0.480	0.230	0.082	0.019	0.0004	0.949
L2	BM	-0.064	0.004	0.724	-0.020	0.0004	0.912
	BF	0.162	0.026	0.471	0.271	0.073	0.223
	WM	-0.258	0.067	0.394	0.269	0.072	0.374
	WF	-0.080	0.006	0.787	0.189	0.036	0.517
L3	BM	-0.174	0.030	0.332	-0.007	0.00005	0.969
	BF	0.082	0.007	0.717	0.087	0.008	0.699
	WM	-0.102	0.010	0.740	0.400	0.160	0.176
	WF	-0.268	0.072	0.355	0.124	0.015	0.673
L4	BM	0.230	0.053	0.198	-0.018	0.0003	0.919
	BF	0.053	0.003	0.815	-0.131	0.017	0.560
	WM	-0.145	0.021	0.636	0.502	0.252	0.097
	WF	-0.343	0.118	0.230	0.178	0.032	0.543
L5	BM	0.299	0.089	0.096	-0.134	0.018	0.463
	BF	-0.111	0.012	0.631	-0.021	0.0004	0.928
	WM	0.121	0.015	0.694	0.412	0.170	0.162
	WF	-0.547	0.299	0.043	-0.270	0.073	0.350

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; PDH = Pedicle height; PDDL = Pedicle lateral diameter

Table 4: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for vertebral body lateral diameter dimensions and angle

VL	P	VDMaxL			VDMinL		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.261	0.068	0.142	-0.310	0.096	0.079
	BF	0.333	0.111	0.130	0.367	0.135	0.093
	WM	0.516	0.266	0.071	0.251	0.063	0.408
	WF	-0.407	0.166	0.149	-0.374	0.140	0.187
L2	BM	-0.110	0.012	0.541	-0.306	0.094	0.079
	BF	0.385	0.148	0.077	0.357	0.127	0.103
	WM	0.528	0.279	0.064	0.365	0.133	0.220
	WF	-0.105	0.011	0.720	-0.175	0.031	0.550
L3	BM	-0.177	0.031	0.324	-0.277	0.077	0.083
	BF	0.303	0.092	0.171	0.275	0.076	0.215
	WM	0.574	0.329	0.040	0.416	0.173	0.158
	WF	-0.225	0.051	0.440	-0.407	0.166	0.149
L4	BM	-0.049	0.002	0.786	-0.298	0.089	0.092
	BF	0.259	0.067	0.245	0.105	0.011	0.642
	WM	0.396	0.157	0.181	0.299	0.089	0.321
	WF	-0.167	0.028	0.567	-0.480	0.230	0.083
L5	BM	-0.242	0.059	0.182	-0.217	0.047	0.234
	BF	0.250	0.063	0.274	-0.065	0.004	0.780
	WM	0.284	0.081	0.347	0.145	0.021	0.637
	WF	-0.246	0.061	0.397	-0.499	0.249	0.069

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; VDMaxL = Maximum vertebral body lateral diameter; VDMinL = Minimum vertebral body lateral diameter

Table 5: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for vertebral body AP diameter dimensions and angle

VL	P	VDMaxAP			VDMinAP		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.072	0.005	0.690	-0.072	0.005	0.690
	BF	0.103	0.011	0.648	0.241	0.058	0.279
	WM	0.308	0.095	0.306	0.223	0.050	0.465
	WF	-0.161	0.026	0.581	-0.159	0.025	0.587
L2	BM	-0.092	0.008	0.609	-0.179	0.032	0.318
	BF	0.024	0.001	0.915	0.166	0.028	0.459
	WM	0.038	0.001	0.903	-0.003	0.00001	0.992
	WF	-0.078	0.006	0.791	-0.198	0.039	0.496
L3	BM	-0.106	0.011	0.557	-0.203	0.041	0.257
	BF	-0.012	0.0001	0.959	0.048	0.002	0.833
	WM	0.247	0.061	0.416	0.107	0.011	0.279
	WF	-0.172	0.030	0.555	-0.163	0.027	0.579
L4	BM	-0.337	0.114	0.055	-0.343	0.118	0.051
	BF	-0.002	0.000004	0.994	0.053	0.003	0.816
	WM	0.228	0.052	0.453	0.239	0.057	0.431
	WF	-0.101	0.010	0.732	-0.225	0.051	0.440
L5	BM	-0.078	0.006	0.677	0.063	0.004	0.733
	BF	0.384	0.147	0.085	0.281	0.079	0.217
	WM	0.576	0.332	0.040	0.663	0.440	0.014
	WF	0.168	0.028	0.565	0.314	0.099	0.275

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; VDMaxAP = Maximum vertebral body AP diameter; VDMinAP = Minimum vertebral body AP diameter

Table 6: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for vertebral body height dimensions and angle

VL	P	VHa			VHp		
		r	r ²	p-value	r	r ²	p-value
L1	BM	0.256	0.066	0.151	-0.005	0.00003	0.980
	BF	0.003	0.000009	0.991	-0.148	0.022	0.511
	WM	0.237	0.056	0.435	-0.255	0.065	0.400
	WF	0.308	0.095	0.284	-0.183	0.033	0.532
L2	BM	0.325	0.106	0.065	-0.030	0.001	0.869
	BF	0.169	0.029	0.453	-0.058	0.003	0.797
	WM	0.186	0.035	0.543	-0.020	0.0009	0.947
	WF	0.002	0.000004	0.994	-0.472	0.223	0.088
L3	BM	0.076	0.006	0.676	-0.115	0.013	0.525
	BF	-0.208	0.043	0.354	-0.169	0.029	0.453
	WM	0.597	0.356	0.040	0.006	0.0004	0.984
	WF	-0.314	0.099	0.274	-0.369	0.136	0.194
L4	BM	0.313	0.098	0.077	-0.020	0.00004	0.910
	BF	0.064	0.004	0.778	-0.213	0.045	0.342
	WM	0.406	0.165	0.168	0.094	0.009	0.761
	WF	-0.265	0.070	0.361	-0.310	0.096	0.281
L5	BM	0.083	0.007	0.650	0.003	0.00001	0.987
	BF	0.052	0.003	0.822	-0.303	0.092	0.182
	WM	0.518	0.268	0.070	0.399	0.159	0.177
	WF	-0.299	0.089	0.299	-0.149	0.022	0.611

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; VHa = Anterior vertebral body height; VHp = Posterior vertebral body height

**APPENDIX D.2: RAW RESULTS FOR LINEAR CORRELATION
ANALYSIS BETWEEN BMD AND AGE**

Table 1: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for medullary BMD and age

VL	P	ROI1			ROI2			ROI3		
		r	r ²	p-value	r	r ²	p-value	r	r ²	p-value
L1	BM	-0.160	0.026	0.381	-0.194	0.038	0.280	-0.408	0.166	0.018
	BF	-0.761	0.580	0.00006	-0.444	0.197	0.039	-0.485	0.235	0.022
	WM	-0.322	0.104	0.334	-0.415	0.172	0.159	-0.459	0.211	0.115
	WF	-0.719	0.517	0.004	-0.637	0.406	0.014	-0.649	0.421	0.012
L2	BM	-0.512	0.262	0.002	-0.030	0.001	0.867	-0.269	0.072	0.131
	BF	-0.522	0.272	0.015	-0.389	0.151	0.066	-0.662	0.438	0.001
	WM	-0.584	0.341	0.036	-0.583	0.340	0.036	-0.675	0.456	0.011
	WF	-0.730	0.533	0.003	-0.742	0.551	0.002	0.013	0.0002	0.968
L3	BM	-0.031	0.001	0.866	-0.070	0.005	0.698	-0.557	0.310	0.001
	BF	-0.404	0.163	0.062	-0.418	0.175	0.053	-0.493	0.243	0.020
	WM	-0.479	0.229	0.098	-0.337	0.114	0.260	-0.402	0.162	0.173
	WF	-0.724	0.524	0.003	-0.791	0.569	0.001	0.092	0.008	0.788
L4	BM	-0.611	0.373	0.0002	-0.095	0.009	0.601	-0.525	0.276	0.002
	BF	-0.395	0.156	0.069	-0.466	0.217	0.029	-0.580	0.336	0.005
	WM	-0.447	0.200	0.126	-0.578	0.334	0.039	-0.245	0.060	0.419
	WF	-0.716	0.513	0.004	-0.739	0.546	0.003	-0.511	0.261	0.062
L5	BM	-0.518	0.268	0.003	0.085	0.007	0.657	-0.403	0.162	0.027
	BF	-0.589	0.350	0.004	-0.587	0.345	0.005	-0.654	0.428	0.001
	WM	-0.360	0.130	0.227	-0.547	0.299	0.053	-0.561	0.315	0.046
	WF	-0.723	0.523	0.003	-0.845	0.714	0.0001	-0.428	0.183	0.126

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; ROI = Region of interest

Table 2: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for cortical endplate BMD and age

VL	P	SEP			IEP		
		r	r ²	p-value	r	r ²	p-value
L1	BM	0.324	0.105	0.066	0.059	0.003	0.746
	BF	-0.358	0.128	0.102	-0.360	0.130	0.100
	WM	-0.191	0.036	0.552	-0.178	0.032	0.560
	WF	-0.491	0.241	0.075	-0.453	0.205	0.104
L2	BM	-0.044	0.002	0.808	-0.219	0.048	0.220
	BF	-0.377	0.142	0.084	-0.169	0.029	0.452
	WM	-0.306	0.094	0.310	-0.083	0.007	0.788
	WF	-0.455	0.207	0.102	-0.463	0.214	0.096
L3	BM	-0.175	0.031	0.330	-0.303	0.092	0.091
	BF	-0.378	0.143	0.083	-0.440	0.194	0.040
	WM	-0.394	0.155	0.183	-0.048	0.002	0.877
	WF	-0.441	0.194	0.114	-0.518	0.268	0.058
L4	BM	-0.346	0.120	0.049	-0.256	0.066	0.151
	BF	-0.457	0.209	0.032	-0.299	0.089	0.177
	WM	-0.006	0.000	0.983	-0.200	0.040	0.513
	WF	-0.538	0.289	0.047	-0.141	0.020	0.631
L5	BM	-0.050	0.003	0.787	-0.170	0.029	0.353
	BF	-0.312	0.097	0.168	-0.356	0.127	0.113
	WM	-0.233	0.054	0.443	-0.459	0.211	0.115
	WF	-0.474	0.225	0.087	-0.357	0.127	0.210

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; SEP = Superior endplate; IEP = Inferior endplate

Table 3: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for cortical border BMD and age

VL	P	AB			PB		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.050	0.003	0.780	-0.072	0.005	0.691
	BF	-0.450	0.203	0.036	-0.331	0.110	0.132
	WM	-0.719	0.517	0.006	-0.212	0.045	0.487
	WF	-0.686	0.471	0.007	-0.252	0.064	0.385
L2	BM	-0.142	0.020	0.431	-0.066	0.004	0.717
	BF	-0.576	0.332	0.005	-0.403	0.162	0.063
	WM	-0.186	0.035	0.543	-0.321	0.103	0.285
	WF	-0.309	0.095	0.282	-0.458	0.210	0.100
L3	BM	-0.268	0.072	0.132	-0.278	0.077	0.117
	BF	-0.562	0.316	0.007	-0.284	0.081	0.200
	WM	-0.344	0.118	0.249	-0.034	0.001	0.912
	WF	-0.417	0.174	0.138	-0.710	0.504	0.004
L4	BM	-0.273	0.075	0.124	-0.163	0.027	0.365
	BF	-0.630	0.397	0.002	-0.407	0.166	0.060
	WM	-0.167	0.028	0.586	-0.141	0.020	0.646
	WF	-0.673	0.453	0.008	-0.553	0.306	0.040
L5	BM	-0.356	0.127	0.046	0.049	0.002	0.788
	BF	-0.753	0.567	0.00008	-0.476	0.227	0.029
	WM	-0.013	0.000	0.966	-0.204	0.042	0.504
	WF	-0.510	0.260	0.063	-0.534	0.285	0.049

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; AB = Anterior border; PB = Posterior border

**APPENDIX D.3: RAW RESULTS FOR LINEAR CORRELATION
ANALYSIS BETWEEN MORPHOMETRICS AND AGE**

Table 1: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for transverse- and spinous process lengths and age

VL	P	TPL			SPL		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.103	0.011	0.567	0.132	0.017	0.464
	BF	-0.091	0.008	0.687	-0.055	0.003	0.807
	WM	0.124	0.015	0.687	0.496	0.246	0.085
	WF	-0.074	0.005	0.802	0.081	0.007	0.783
L2	BM	-0.234	0.055	0.190	0.097	0.009	0.590
	BF	0.227	0.052	0.309	0.129	0.017	0.567
	WM	0.362	0.131	0.225	0.581	0.338	0.037
	WF	-0.162	0.026	0.579	0.286	0.082	0.322
L3	BM	0.031	0.001	0.865	0.151	0.023	0.403
	BF	0.299	0.089	0.176	0.243	0.059	0.276
	WM	0.050	0.003	0.872	0.770	0.593	0.002
	WF	0.066	0.004	0.823	-0.058	0.003	0.844
L4	BM	0.062	0.004	0.730	-0.041	0.002	0.823
	BF	0.270	0.073	0.224	0.186	0.035	0.408
	WM	0.231	0.053	0.448	0.458	0.210	0.116
	WF	0.015	0.0001	0.959	0.027	0.001	0.926
L5	BM	-0.012	0.000	0.949	0.056	0.003	0.763
	BF	0.110	0.012	0.634	0.274	0.075	0.230
	WM	-0.011	0.0001	0.974	0.427	0.182	0.146
	WF	-0.016	0.0003	0.957	0.250	0.063	0.388

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; TPL = Transverse process length; SPL = Spinous process length

Table 2: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for spinal canal dimensions and age

VL	P	SCDAP			SCDL		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.051	0.003	0.779	-0.095	0.009	0.598
	BF	0.028	0.001	0.903	0.073	0.005	0.745
	WM	0.075	0.006	0.807	0.294	0.086	0.329
	WF	0.137	0.019	0.642	0.022	0.0005	0.940
L2	BM	0.245	0.060	0.177	-0.125	0.016	0.488
	BF	0.263	0.069	0.250	0.181	0.033	0.419
	WM	0.003	0.0001	0.992	0.279	0.078	0.356
	WF	0.169	0.029	0.563	0.046	0.002	0.875
L3	BM	0.041	0.002	0.822	-0.087	0.008	0.631
	BF	0.081	0.007	0.720	0.080	0.006	0.724
	WM	-0.268	0.072	0.376	-0.111	0.012	0.719
	WF	0.319	0.102	0.267	0.389	0.151	0.169
L4	BM	-0.003	0.0007	0.985	-0.088	0.008	0.628
	BF	-0.062	0.004	0.784	0.345	0.119	0.116
	WM	-0.027	0.001	0.931	0.027	0.001	0.931
	WF	0.121	0.015	0.680	-0.004	0.00002	0.989
L5	BM	0.170	0.029	0.352	0.043	0.002	0.816
	BF	-0.216	0.047	0.348	0.255	0.065	0.264
	WM	-0.234	0.055	0.443	-0.129	0.017	0.675
	WF	0.238	0.057	0.413	0.320	0.102	0.265

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; SCDAP = Spinal canal AP diameter; SCDL = Spinal canal lateral diameter

Table 3: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for pedicle dimensions and age

VL	P	PDH			PDDL		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.137	0.019	0.446	-0.092	0.008	0.612
	BF	0.120	0.014	0.593	0.154	0.024	0.494
	WM	-0.256	0.066	0.398	0.031	0.001	0.920
	WF	0.292	0.085	0.311	-0.139	0.019	0.636
L2	BM	-0.310	0.096	0.079	0.084	0.007	0.643
	BF	-0.012	0.0001	0.959	0.200	0.040	0.373
	WM	-0.026	0.001	0.934	-0.039	0.002	0.898
	WF	0.289	0.084	0.316	-0.123	0.015	0.674
L3	BM	-0.220	0.048	0.219	0.116	0.013	0.519
	BF	-0.027	0.001	0.905	0.171	0.029	0.447
	WM	0.024	0.001	0.938	-0.209	0.044	0.492
	WF	0.355	0.126	0.213	-0.254	0.065	0.380
L4	BM	-0.166	0.028	0.356	0.058	0.003	0.749
	BF	-0.155	0.024	0.492	0.013	0.0002	0.955
	WM	-0.561	0.315	0.046	0.130	0.017	0.687
	WF	0.224	0.050	0.441	-0.331	0.110	0.248
L5	BM	-0.066	0.004	0.720	-0.058	0.003	0.753
	BF	0.165	0.027	0.475	0.071	0.005	0.759
	WM	0.046	0.002	0.881	0.283	0.080	0.349
	WF	-0.011	0.0001	0.971	-0.012	0.0001	0.968

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; PDH = Pedicle height; PDDL = Pedicle lateral diameter

Table 4: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for vertebral body lateral diameter dimensions and age

VL	P	VDMaxL			VDMinL		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.080	0.006	0.659	-0.115	0.013	0.525
	BF	0.445	0.198	0.038	0.417	0.174	0.054
	WM	0.593	0.352	0.033	0.388	0.151	0.190
	WF	0.384	0.147	0.175	0.363	0.132	0.203
L2	BM	0.054	0.003	0.766	-0.060	0.004	0.739
	BF	0.449	0.202	0.036	0.458	0.210	0.032
	WM	0.451	0.203	0.122	0.397	0.158	0.179
	WF	0.610	0.372	0.021	0.499	0.249	0.070
L3	BM	0.107	0.011	0.553	-0.017	0.0003	0.924
	BF	0.402	0.162	0.063	0.441	0.194	0.040
	WM	0.571	0.326	0.042	0.562	0.316	0.045
	WF	0.579	0.335	0.030	0.523	0.274	0.055
L4	BM	0.037	0.001	0.838	-0.100	0.010	0.581
	BF	0.609	0.371	0.003	0.535	0.286	0.010
	WM	0.477	0.228	0.099	0.533	0.284	0.061
	WF	0.487	0.237	0.077	0.539	0.291	0.047
L5	BM	0.247	0.061	0.172	0.040	0.002	0.829
	BF	0.604	0.365	0.004	0.523	0.274	0.015
	WM	0.544	0.296	0.055	0.575	0.331	0.040
	WF	0.708	0.501	0.005	0.639	0.408	0.014

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; VDMaxL = Maximum vertebral body lateral diameter; VDMinL = Minimum vertebral body lateral diameter

Table 5: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for vertebral body AP diameter dimensions and age

VL	P	VDMaxAP			VDMinAP		
		r	r ²	p-value	r	r ²	p-value
L1	BM	0.002	0.000004	0.991	-0.121	0.015	0.502
	BF	0.354	0.125	0.106	0.120	0.014	0.595
	WM	0.417	0.174	0.157	0.342	0.117	0.253
	WF	0.275	0.076	0.342	0.268	0.072	0.355
L2	BM	0.055	0.003	0.760	-0.073	0.005	0.688
	BF	0.355	0.126	0.104	0.246	0.061	0.270
	WM	0.353	0.125	0.237	0.430	0.185	0.163
	WF	0.385	0.148	0.174	0.240	0.058	0.408
L3	BM	-0.141	0.020	0.434	-0.219	0.048	0.221
	BF	0.449	0.202	0.036	0.368	0.135	0.092
	WM	0.471	0.222	0.104	0.392	0.154	0.185
	WF	0.258	0.067	0.373	0.333	0.111	0.245
L4	BM	-0.029	0.001	0.873	-0.100	0.010	0.580
	BF	0.573	0.328	0.005	0.466	0.217	0.029
	WM	0.434	0.188	0.138	0.382	0.146	0.198
	WF	0.125	0.016	0.670	0.117	0.014	0.690
L5	BM	0.073	0.005	0.698	0.039	0.002	0.834
	BF	0.586	0.343	0.005	0.400	0.160	0.072
	WM	0.635	0.403	0.020	0.481	0.231	0.096
	WF	-0.274	0.075	0.343	-0.258	0.067	0.373

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; VDMaxAP = Maximum vertebral body AP diameter; VDMinAP = Minimum vertebral body AP diameter

Table 6: Table indicating the Pearson's correlation r-values, r² values, and associated p-values obtained from the linear regression analysis for vertebral body height dimensions and age

VL	P	VHa			VHp		
		r	r ²	p-value	r	r ²	p-value
L1	BM	-0.312	0.097	0.077	-0.225	0.051	0.209
	BF	0.012	0.0001	0.959	-0.159	0.025	0.480
	WM	-0.054	0.003	0.860	-0.197	0.039	0.519
	WF	-0.321	0.103	0.264	0.018	0.0003	0.950
L2	BM	-0.184	0.034	0.305	-0.252	0.064	0.157
	BF	-0.036	0.001	0.874	0.019	0.000	0.932
	WM	-0.123	0.015	0.689	0.209	0.044	0.493
	WF	-0.187	0.035	0.522	0.038	0.001	0.897
L3	BM	-0.242	0.059	0.175	-0.291	0.085	0.100
	BF	-0.283	0.080	0.202	-0.064	0.004	0.778
	WM	-0.106	0.011	0.744	0.037	0.001	0.909
	WF	-0.121	0.015	0.681	-0.087	0.008	0.767
L4	BM	-0.258	0.067	0.148	-0.256	0.066	0.151
	BF	-0.314	0.099	0.154	-0.062	0.004	0.784
	WM	0.157	0.025	0.609	0.006	0.00004	0.986
	WF	-0.181	0.033	0.536	-0.269	0.072	0.353
L5	BM	-0.378	0.143	0.033	-0.164	0.027	0.369
	BF	-0.349	0.122	0.121	-0.396	0.157	0.076
	WM	0.356	0.127	0.232	0.308	0.095	0.305
	WF	-0.416	0.173	0.139	-0.406	0.165	0.149

Key: VL = Vertebral level; P = Population group; BM = Black males; BF = Black females; WM = White males; WF = White females; VHa = Anterior vertebral body height; VHp = Posterior vertebral body height

APPENDIX E.1: RAW CT DATA FOR OBSERVER ANALYSIS – LLA AND BMD

Table 1: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the Lumbar lordosis angle

Case ID	Age	P	Sex	LLA	IA	IE
2796360	36	B	M	21.8	24.2	24.5
8313270	27	B	M	32.4	32.7	34.5
474590	59	W	M	18.9	18.2	18.2
8213390	39	B	M	30.1	31.6	30.6
696271	27	B	F	22.0	19.8	28.5
3080371	37	W	F	13.2	14.4	19.9
376411	41	B	F	42.9	45.3	44.7
2622521	52	B	F	48.5	50.6	54.5

Key: P = Population group; B = Black; W= White; M = Male; F = Female; LLA = Original lumbar lordosis angle measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in degrees

Table 2: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the medullary BMD

VL	Case ID	Age	P	Sex	ROI1	IA	IE	ROI2	IA	IE	ROI3	IA	IE
L1	2796360	36	B	M	213	197	196	185	175	181	244	238	256
	8313270	27	B	M	263	231	280	215	215	222	277	257	275
	474590	59	W	M	154	151	250	168	166	162	168	167	266
	8213390	39	B	M	250	240	331	234	238	245	274	265	274
	696271	27	B	F	198	194	245	174	166	215	267	271	293
	3080371	37	W	F	243	245	242	167	168	184	225	230	193
	376411	41	B	F	213	221	223	241	252	270	264	262	242
	2622521	52	B	F	171	175	130	126	126	131	163	164	197
L2	2796360	36	B	M	221	207	197	173	172	191	237	227	265
	8313270	27	B	M	240	239	273	218	219	234	260	247	279
	474590	59	W	M	160	159	151	152	153	147	199	161	163
	8213390	39	B	M	257	258	285	247	244	257	266	266	280
	696271	27	B	F	166	204	217	193	177	220	257	258	296
	3080371	37	W	F	243	238	238	170	156	177	207	209	211

VL	Case ID	Age	P	Sex	ROI1	IA	IE	ROI2	IA	IE	ROI3	IA	IE
	376411	41	B	F	233	228	223	253	249	260	281	280	271
	2622521	52	B	F	166	163	143	120	119	126	136	136	142
L3	2796360	36	B	M	214	230	221	166	154	168	244	246	256
	8313270	27	B	M	234	260	346	216	224	233	273	257	246
	474590	59	W	M	158	147	150	163	159	157	219	179	172
	8213390	39	B	M	262	246	302	238	241	252	260	258	318
	696271	27	B	F	188	189	206	177	168	187	276	231	243
	3080371	37	W	F	242	245	182	154	152	175	234	238	241
	376411	41	B	F	220	220	233	232	226	250	228	227	232
	2622521	52	B	F	189	172	147	113	118	121	135	141	143
L4	2796360	36	B	M	207	210	204	183	171	173	208	201	198
	8313270	27	B	M	258	230	266	226	225	254	250	248	253
	474590	59	W	M	143	145	134	154	142	167	177	181	178
	8213390	39	B	M	253	248	282	243	237	256	265	263	295
	696271	27	B	F	216	214	182	190	181	192	234	245	251
	3080371	37	W	F	203	192	281	162	174	174	233	258	169
	376411	41	B	F	225	237	213	219	219	224	252	259	244
	2622521	52	B	F	189	194	210	109	111	122	119	121	130
L5	2796360	36	B	M	193	190	200	173	174	183	209	214	183
	8313270	27	B	M	238	236	287	223	223	232	260	249	267
	474590	59	W	M	231	216	141	159	148	189	175	177	184
	8213390	39	B	M	250	247	299	242	238	275	268	265	358
	696271	27	B	F	250	242	200	205	186	208	196	222	212
	3080371	37	W	F	225	219	219	176	176	193	197	197	226
	376411	41	B	F	218	220	233	213	215	222	231	259	260
	2622521	52	B	F	154	150	139	112	102	124	111	115	181

Key: ROI = Region of interest; VL = Vertebral level; P = Population group; B = Black; W = White M = Male; F = Female; IE = Interobserver measurements; IA = Intra-observer measurements. All measurements are in Hounsfield units (HU)

Table 3: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the cortical BMD

VL	Case ID	Age	P	Sex	SEP	IA	IE	IEP	IA	IE	AB	IA	IE	PB	IA	IE
L1	2796360	36	B	M	421	434	304	582	550	541	466	468	457	429	480	437
	8313270	27	B	M	437	437	263	564	586	398	602	463	463	691	690	628
	474590	59	W	M	360	449	345	373	436	369	510	342	255	239	413	193
	8213390	39	B	M	534	535	544	572	485	481	650	514	444	707	718	640
	696271	27	B	F	366	392	389	303	475	296	440	421	406	414	566	309
	3080371	37	W	F	421	462	390	437	427	261	497	360	303	677	617	645
	376411	41	B	F	296	320	260	380	458	338	426	493	462	396	505	405
	2622521	52	B	F	467	450	304	464	549	359	374	307	240	496	451	410
L2	2796360	36	B	M	501	503	503	566	580	583	567	448	208	537	549	494
	8313270	27	B	M	508	483	493	606	636	431	460	487	407	826	799	769
	474590	59	W	M	375	388	347	468	617	512	367	368	406	317	586	336
	8213390	39	B	M	590	502	585	534	531	364	486	559	409	857	793	879
	696271	27	B	F	394	420	240	444	442	394	467	469	350	375	616	290
	3080371	37	W	F	532	475	455	614	489	559	502	387	255	690	690	649
	376411	41	B	F	275	331	307	496	492	423	340	462	319	302	577	394
	2622521	52	B	F	452	456	328	648	653	561	316	350	303	486	507	479
L3	2796360	36	B	M	521	505	482	513	531	439	562	468	414	777	771	636
	8313270	27	B	M	648	664	662	703	737	633	476	456	408	881	881	803
	474590	59	W	M	385	462	337	580	566	422	372	436	280	417	725	374
	8213390	39	B	M	609	609	558	607	604	531	484	484	387	812	812	711
	696271	27	B	F	327	372	226	452	476	329	447	481	368	382	627	454
	3080371	37	W	F	424	433	253	520	567	441	387	359	308	519	534	470
	376411	41	B	F	416	456	378	461	482	475	411	481	372	286	619	258
	2622521	52	B	F	415	493	333	589	572	505	395	332	346	643	688	601
L4	2796360	36	B	M	440	485	380	587	586	458	567	567	473	598	618	506
	8313270	27	B	M	684	705	408	684	688	447	460	463	430	827	827	750
	474590	59	W	M	424	462	152	544	613	374	367	444	330	337	578	376
	8213390	39	B	M	528	524	288	551	551	275	486	491	358	823	747	755
	696271	27	B	F	350	447	277	380	472	174	467	444	467	459	768	337
	3080371	37	W	F	378	485	337	467	506	404	502	437	428	467	511	356
	376411	41	B	F	317	460	225	385	461	334	340	439	314	333	539	376
	2622521	52	B	F	493	594	290	554	483	377	316	378	229	555	514	514
L5	2796360	36	B	M	427	437	341	511	630	496	466	509	452	566	540	514
	8313270	27	B	M	617	601	320	722	723	335	602	567	493	639	597	565
	474590	59	W	M	371	485	174	347	462	213	510	511	520	350	606	301

VL	Case ID	Age	P	Sex	SEP	IA	IE	IEP	IA	IE	AB	IA	IE	PB	IA	IE
	8213390	39	B	M	586	582	419	633	694	514	650	613	547	842	852	806
	696271	27	B	F	311	353	278	390	428	307	440	484	440	558	584	445
	3080371	37	W	F	443	503	298	422	428	106	497	503	373	421	473	346
	376411	41	B	F	411	432	284	440	473	185	426	448	461	405	618	363
	2622521	52	B	F	389	443	352	439	539	177	374	353	207	447	667	351

Key: VL = Vertebral level; P = Population group; B = Black; W = White M = Male; F = Female; SEP = Original superior endplate measurement; IEP = Original inferior endplate measurement; AB = Original anterior border measurement; PB = Original posterior border measurement; IE = Interobserver measurements; IA = Intra-observer measurements. All measurements are in Hounsfield units (HU)

APPENDIX E.2: RAW CT DATA FOR OBSERVER ANALYSIS – MORPHOMETRICS

Table 1: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the pedicle measurements

VL	Case ID	Age	P	Sex	PDDL	IA	IE	PDH	IA	IE
L1	2796360	36	B	M	7.9	8.2	7.4	15.9	17.0	15.8
	8313270	27	B	M	7.7	6.7	7.4	17.8	17.9	16.5
	474590	59	W	M	11.6	11.4	8.4	18.9	19.2	19.2
	8213390	39	B	M	11.7	11.5	9.4	19.7	19.4	18.2
	696271	27	B	F	7.8	8.7	8.5	18.0	17.3	12.8
	3080371	37	W	F	9.4	10.9	7.4	17.9	17.6	17.3
	376411	41	B	F	10.6	9.4	7.5	16.9	17.3	13.9
	2622521	52	B	F	8.4	8.6	7.1	15.6	14.8	16.3
L2	2796360	36	B	M	9.5	9.7	7.4	16.3	16.6	16.3
	8313270	27	B	M	8.6	8.1	7.6	17.2	18.7	14.7
	474590	59	W	M	10.6	11.0	8.8	19.4	19.1	15.5
	8213390	39	B	M	12.0	12.3	9.5	19.5	19.2	18.1
	696271	27	B	F	8.1	8.6	7.7	15.4	16.9	14.6
	3080371	37	W	F	9.8	10.2	8.5	16.7	17.5	11.1
	376411	41	B	F	11.9	10.7	8.7	16.9	17.5	16.3
	2622521	52	B	F	9.6	9.0	6.9	15.4	14.3	13.7
L3	2796360	36	B	M	10.1	11.1	9.4	16.2	15.1	16.6
	8313270	27	B	M	11.3	11.2	10.0	17.1	17.7	14.2
	474590	59	W	M	13.9	12.6	10.7	20.2	18.9	14.7
	8213390	39	B	M	13.1	13.1	11.2	20.5	20.3	14.8
	696271	27	B	F	10.6	10.8	10.2	17.6	16.6	16.6
	3080371	37	W	F	10.2	11.3	8.9	16.3	17.4	17.4
	376411	41	B	F	11.2	11.5	9.9	15.8	17.5	15.8
	2622521	52	B	F	12.3	11.8	9.4	13.4	15.0	11.6
L4	2796360	36	B	M	13.5	13.4	11.7	13.8	16.2	13.5
	8313270	27	B	M	13.8	13.2	11.8	17.0	17.4	14.5
	474590	59	W	M	14.0	13.8	13.2	17.7	18.0	18.0
	8213390	39	B	M	14.8	15.0	13.1	19.4	20.5	28.5
	696271	27	B	F	12.9	12.9	11.3	15.9	16.7	12.3
	3080371	37	W	F	12.4	13.1	10.6	15.7	17.0	12.2
	376411	41	B	F	11.3	12.8	11.9	14.6	15.6	15.0

VL	Case ID	Age	P	Sex	PDDL	IA	IE	PDH	IA	IE
	2622521	52	B	F	13.3	12.7	11.6	12.9	12.0	13.3
L5	2796360	36	B	M	17.9	17.3	15.7	14.6	14.9	11.4
	8313270	27	B	M	16.6	16.3	15.8	13.8	14.4	13.7
	474590	59	W	M	15.8	16.3	15.0	15.1	15.1	12.6
	8213390	39	B	M	17.4	17.7	16.2	18.2	17.8	17.9
	696271	27	B	F	16.1	16.6	15.6	15.5	14.3	14.3
	3080371	37	W	F	15.2	15.6	15.4	14.0	14.6	12.9
	376411	41	B	F	16.5	15.7	15.5	12.6	12.8	14.0
	2622521	52	B	F	16.9	18.1	15.8	11.1	12.3	12.7
<p><i>Key: VL = Vertebral level; P = Population group; B = Black; W= White; M = Male; F = Female; PDDL = Original lateral pedicle diameter measurement; PDH = Original pedicle height measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres</i></p>										

Table 2: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the transverse and spinous process lengths

VL	Case ID	Age	P	Sex	TPL	IA	IE	SPL	IA	IE
L1	2796360	36	B	M	79.1	79.0	69.3	35.6	37.6	37.1
	8313270	27	B	M	70.7	69.9	67.1	36.0	36.3	32.9
	474590	59	W	M	81.7	80.0	77.9	38.5	38.3	34.8
	8213390	39	B	M	77.2	77.0	80.8	38.3	39.3	37.7
	696271	27	B	F	62.1	62.3	65.7	32.0	35.4	27.0
	3080371	37	W	F	67.2	66.7	70.7	30.2	28.9	27.4
	376411	41	B	F	68.1	68.2	74.2	30.9	33.5	29.7
	2622521	52	B	F	72.7	73.2	60.3	34.3	32.7	31.1
L2	2796360	36	B	M	86.5	85.0	70.9	42.0	41.1	39.5
	8313270	27	B	M	73.4	72.1	75.1	41.7	41.9	34.8
	474590	59	W	M	92.1	92.1	85.3	43.5	41.4	39.0
	8213390	39	B	M	87.0	86.8	89.0	43.9	44.5	40.3
	696271	27	B	F	78.6	81.7	77.7	34.2	37.0	30.9
	3080371	37	W	F	77.3	77.2	77.7	31.0	32.5	31.9
	376411	41	B	F	87.3	84.4	84.2	33.5	34.3	31.3
	2622521	52	B	F	80.7	81.8	71.8	32.5	35.4	35.1
L3	2796360	36	B	M	96.5	98.3	82.0	44.1	43.2	39.9
	8313270	27	B	M	83.4	83.2	78.6	41.9	45.4	37.6
	474590	59	W	M	113.0	114.0	107.6	40.8	42.3	44.3
	8213390	39	B	M	95.5	95.3	101.0	44.6	45.1	40.2
	696271	27	B	F	103.0	103.0	97.6	37.9	38.7	30.4

VL	Case ID	Age	P	Sex	TPL	IA	IE	SPL	IA	IE
	3080371	37	W	F	84.5	83.9	86.9	30.1	33.0	34.8
	376411	41	B	F	96.2	95.7	91.6	31.0	34.5	33.4
	2622521	52	B	F	91.3	89.3	101.0	34.8	35.9	37.0
L4	2796360	36	B	M	91.4	92.8	84.5	42.5	43.4	43.4
	8313270	27	B	M	86.7	85.3	79.0	39.9	43.0	32.0
	474590	59	W	M	102.0	103.0	94.7	38.3	39.8	41.3
	8213390	39	B	M	93.9	93.1	101.0	44.1	43.9	43.2
	696271	27	B	F	92.1	93.7	86.7	36.1	37.4	37.4
	3080371	37	W	F	89.9	89.5	83.0	25.4	28.8	29.8
	376411	41	B	F	86.7	85.2	82.8	25.0	26.9	26.8
	2622521	52	B	F	84.8	85.3	91.0	30.3	32.6	32.6
L5	2796360	36	B	M	94.7	94.9	82.6	35.4	38.6	30.2
	8313270	27	B	M	78.3	77.8	84.3	33.3	39.0	28.8
	474590	59	W	M	98.1	97.6	92.8	32.1	31.2	36.1
	8213390	39	B	M	101.0	102.0	97.1	36.9	37.8	37.2
	696271	27	B	F	98.4	100.0	87.6	28.1	30.0	29.8
	3080371	37	W	F	89.0	88.9	92.4	24.5	21.4	21.7
	376411	41	B	F	93.3	93.7	86.9	24.2	28.1	27.1
	2622521	52	B	F	97.9	102.0	98.5	23.2	24.1	27.8
<p><i>Key: VL = Vertebral level; P = Population group; B = Black; W = White M = Male; F = Female; TPL = Original transverse process length measurement; SPL = Original spinous process length measurement; IE = Interobserver measurements; IA = Intra-observer measurements. All measurements are in millimetres</i></p>										

Table 3: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the vertebral body heights

VL	Case ID	Age	P	Sex	VHa	IA	IE	VHp	IA	IE
L1	2796360	36	B	M	25.5	27.6	25.5	28.9	30.6	28.3
	8313270	27	B	M	26.0	29.3	24.1	27.3	29.6	27.2
	474590	59	W	M	28.9	30.9	26.4	32.0	32.7	29.0
	8213390	39	B	M	30.2	29.4	24.1	34.3	34.3	30.1
	696271	27	B	F	27.6	27.7	23.6	30.2	29.1	25.4
	3080371	37	W	F	25.9	26.4	23.3	28.3	29.6	23.2
	376411	41	B	F	27.5	28.8	24.7	29.5	30.7	26.0
	2622521	52	B	F	28.4	26.1	26.3	27.4	26.9	28.9
L2	2796360	36	B	M	27.8	29.3	29.3	30.4	30.4	27.5
	8313270	27	B	M	29.0	30.0	26.5	29.4	31.5	26.7

VL	Case ID	Age	P	Sex	VHa	IA	IE	VHp	IA	IE
	474590	59	W	M	29.4	30.2	27.1	34.2	33.2	33.2
	8213390	39	B	M	30.1	28.8	27.8	32.5	33.8	29.8
	696271	27	B	F	28.4	30.3	25.3	29.9	30.2	27.7
	3080371	37	W	F	27.4	29.1	25.7	30.2	30.2	30.2
	376411	41	B	F	29.0	28.4	28.5	30.8	31.5	26.2
	2622521	52	B	F	26.9	28.4	27.0	25.9	26.6	26.6
L3	2796360	36	B	M	28.6	29.1	27.7	30.1	30.4	30.7
	8313270	27	B	M	30.4	31.9	28.3	33.7	32.6	31.6
	474590	59	W	M	31.8	30.9	26.0	33.0	34.2	34.7
	8213390	39	B	M	32.2	31.2	28.1	34.1	33.9	29.8
	696271	27	B	F	30.7	31.0	27.4	31.2	30.5	27.4
	3080371	37	W	F	31.1	32.1	29.4	32.4	31.4	30.8
	376411	41	B	F	29.3	29.3	25.0	29.0	31.1	30.1
	2622521	52	B	F	26.9	28.6	26.9	27.2	28.7	28.4
L4	2796360	36	B	M	27.5	30.2	25.2	26.4	29.5	26.6
	8313270	27	B	M	28.3	30.2	28.3	29.4	30.0	27.5
	474590	59	W	M	30.3	31.4	31.4	31.3	29.9	29.5
	8213390	39	B	M	33.6	34.3	32.5	34.4	35.0	34.4
	696271	27	B	F	28.9	29.9	27.0	30.7	28.8	26.1
	3080371	37	W	F	29.4	32.3	25.6	30.8	32.8	30.7
	376411	41	B	F	27.3	29.6	28.2	27.9	29.1	27.4
	2622521	52	B	F	26.9	27.8	28.2	25.1	24.6	28.1
L5	2796360	36	B	M	28.9	29.7	29.7	25.7	26.1	24.4
	8313270	27	B	M	30.2	31.6	31.6	27.5	27.1	28.9
	474590	59	W	M	32.4	32.3	28.5	27.8	26.3	23.9
	8213390	39	B	M	32.1	33.5	29.8	31.3	31.1	32.2
	696271	27	B	F	30.9	31.3	29.3	26.0	26.6	24.4
	3080371	37	W	F	32.1	32.7	27.2	27.9	28.5	26.5
	376411	41	B	F	27.0	31.0	26.1	24.7	25.6	28.1
	2622521	52	B	F	28.3	29.8	29.6	24.5	25.7	25.3

Key: VL = Vertebral level; P = Population group; B = Black; W = White M = Male; F = Female; VHa = Original anterior vertebral body height measurement; PB = Original posterior vertebral body height measurement; IE = Interobserver measurements; IA = Intra-observer measurements. All measurements are in millimetres

Table 4: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the lateral vertebral body diameters

VL	Case ID	Age	P	Sex	VDMaxL	IA	IE	VDMINL	IA	IE
L1	2796360	36	B	M	46.1	45.3	46.1	40.5	41.1	39.0
	8313270	27	B	M	45.7	46.2	44.7	40.2	40.0	37.0
	474590	59	W	M	46.7	46.5	49.1	40.2	38.6	37.6
	8213390	39	B	M	49.0	48.1	48.6	41.9	41.7	39.5
	696271	27	B	F	38.5	39.3	39.9	33.9	35.2	32.7
	3080371	37	W	F	36.5	38.4	38.0	33.2	34.5	31.3
	376411	41	B	F	46.2	45.7	37.5	41.3	40.7	31.4
	2622521	52	B	F	37.2	38.3	39.4	33.3	32.7	32.7
L2	2796360	36	B	M	46.1	47.5	48.2	41.4	42.0	41.9
	8313270	27	B	M	47.6	47.7	46.1	43.7	42.7	39.6
	474590	59	W	M	46.6	47.9	50.4	42.8	42.8	40.5
	8213390	39	B	M	50.7	49.6	50.9	44.7	45.3	40.1
	696271	27	B	F	39.2	39.6	40.7	35.7	35.8	34.2
	3080371	37	W	F	40.3	40.7	39.9	35.1	35.7	32.5
	376411	41	B	F	46.6	46.3	42.1	41.5	41.2	33.9
	2622521	52	B	F	38.7	39.4	39.1	35.0	34.6	34.4
L3	2796360	36	B	M	51.1	49.7	50.8	43.8	42.9	42.3
	8313270	27	B	M	51.8	50.2	48.7	45.3	44.0	39.4
	474590	59	W	M	51.1	50.7	52.7	43.7	44.8	41.9
	8213390	39	B	M	52.2	51.8	53.4	45.1	45.2	42.9
	696271	27	B	F	40.3	39.8	45.1	36.3	36.8	37.5
	3080371	37	W	F	44.3	42.5	43.8	38.7	38.2	36.0
	376411	41	B	F	46.9	47.9	44.2	44.2	43.0	35.8
	2622521	52	B	F	42.8	42.6	44.3	37.8	37.2	36.8
L4	2796360	36	B	M	52.7	49.6	53.5	46.7	44.9	44.4
	8313270	27	B	M	52.1	52.8	51.9	45.3	45.0	43.0
	474590	59	W	M	52.1	50.9	51.5	46.6	47.1	45.5
	8213390	39	B	M	52.8	52.6	51.9	46.7	46.4	44.8
	696271	27	B	F	44.1	45.8	46.5	40.4	40.1	41.3
	3080371	37	W	F	44.6	43.4	43.7	42.5	42.2	42.1
	376411	41	B	F	51.6	50.2	45.7	45.9	44.5	38.4
	2622521	52	B	F	44.7	44.4	46.9	39.6	38.7	37.8
L5	2796360	36	B	M	56.9	55.9	50.5	45.3	44.3	43.1
	8313270	27	B	M	51.7	52.9	50.1	44.3	45.4	41.6
	474590	59	W	M	56.0	55.1	54.6	43.8	44.5	45.2

VL	Case ID	Age	P	Sex	VDMaxL	IA	IE	VDMINL	IA	IE
	8213390	39	B	M	52.7	53.7	53.8	44.2	45.0	42.4
	696271	27	B	F	46.4	50.8	46.0	40.1	41.1	40.1
	3080371	37	W	F	46.2	45.9	44.9	41.8	41.0	41.4
	376411	41	B	F	57.3	56.2	49.0	49.1	47.5	47.6
	2622521	52	B	F	46.0	46.7	47.3	36.9	41.4	41.1

Key: VL = Vertebral level; P = Population group; B = Black; W = White M = Male; F = Female; VDMaxL = Original maximum lateral vertebral body lateral diameter measurement; VDMINL = Original minimum vertebral body lateral diameter measurement; IE = Interobserver measurements; IA = Intra-observer measurements. All measurements are in millimetres

Table 5: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the AP vertebral body diameters

VL	Case ID	Age	P	Sex	VDMaxAP	IA	IE	VDMINAP	IA	IE
L1	2796360	36	B	M	34.7	32.6	32.5	30.7	31.0	28.8
	8313270	27	B	M	33.4	31.4	30.5	31.0	29.4	29.4
	474590	59	W	M	30.9	31.9	32.9	28.0	30.2	28.8
	8213390	39	B	M	32.5	32.6	30.6	30.6	30.3	28.2
	696271	27	B	F	26.3	25.4	28.7	22.3	22.7	24.3
	3080371	37	W	F	29.1	29.2	30.0	26.2	27.8	28.6
	376411	41	B	F	30.4	28.0	30.1	26.5	26.4	27.5
	2622521	52	B	F	32.3	30.7	27.9	29.5	28.7	29.8
L2	2796360	36	B	M	37.9	36.1	35.4	32.7	33.9	30.8
	8313270	27	B	M	34.2	34.1	33.1	32.9	32.7	32.7
	474590	59	W	M	32.8	32.4	35.3	30.2	31.6	30.8
	8213390	39	B	M	32.6	33.1	33.2	32.3	32.9	27.4
	696271	27	B	F	28.3	26.7	27.5	24.1	24.4	26.9
	3080371	37	W	F	31.9	31.7	31.8	28.9	30.0	28.9
	376411	41	B	F	31.1	30.1	32.6	29.4	29.2	30.0
	2622521	52	B	F	32.7	31.8	29.0	29.9	30.6	27.6
L3	2796360	36	B	M	37.9	36.0	35.4	35.1	34.4	30.9
	8313270	27	B	M	34.9	33.9	33.5	32.2	32.6	28.5
	474590	59	W	M	36.3	36.4	36.6	33.8	34.4	33.2
	8213390	39	B	M	34.3	34.6	37.2	33.3	33.4	30.6
	696271	27	B	F	29.2	29.5	29.8	26.1	26.6	29.5
	3080371	37	W	F	33.5	32.4	31.6	31.8	31.0	27.7
	376411	41	B	F	33.5	33.6	34.1	31.1	32.1	30.5

VL	Case ID	Age	P	Sex	VDMaxAP	IA	IE	VDMINAP	IA	IE
	2622521	52	B	F	32.3	32.9	30.1	30.8	31.1	26.1
L4	2796360	36	B	M	36.9	36.6	33.5	34.6	34.0	34.0
	8313270	27	B	M	37.3	34.8	34.3	34.4	31.8	31.8
	474590	59	W	M	36.7	36.6	36.5	34.7	35.2	31.7
	8213390	39	B	M	35.6	34.9	36.7	33.5	33.9	32.3
	696271	27	B	F	32.4	31.2	32.8	29.0	29.1	30.5
	3080371	37	W	F	32.9	33.2	31.6	31.6	32.0	28.6
	376411	41	B	F	35.8	35.6	32.6	34.2	33.7	32.9
	2622521	52	B	F	33.6	33.1	33.2	30.4	31.5	29.8
L5	2796360	36	B	M	39.1	37.6	37.6	34.9	35.6	35.7
	8313270	27	B	M	34.7	35.4	34.2	32.7	32.6	31.4
	474590	59	W	M	36.8	37.3	37.2	33.5	35.3	34.5
	8213390	39	B	M	36.6	36.2	37.2	36.0	35.8	32.6
	696271	27	B	F	34.3	33.7	31.9	31.5	30.8	29.6
	3080371	37	W	F	32.2	32.1	35.0	31.8	31.5	32.4
	376411	41	B	F	39.7	38.5	36.7	35.2	38.0	32.0
	2622521	52	B	F	37.7	36.1	36.1	36.4	35.2	33.5

Key: VL = Vertebral level; P = Population group; B = Black; W = White M = Male; F = Female; VDMaxAP = Original maximum lateral vertebral body AP diameter measurement; VDMINAP = Original minimum vertebral body AP diameter measurement; IE = Interobserver measurements; IA = Intra-observer measurements. All measurements are in millimetres

Table 6: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the spinal canal AP and lateral diameters

VL	Case ID	Age	P	Sex	SCDAP	IA	IE	SCDL	IA	IE
L1	2796360	36	B	M	15.7	15.8	16.9	24.3	23.8	23.5
	8313270	27	B	M	14.8	15.7	13.8	21.8	23.8	26.0
	474590	59	W	M	13.2	13.7	15.3	21.9	22.7	25.2
	8213390	39	B	M	14.8	15.7	15.0	22.3	22.3	22.9
	696271	27	B	F	16.7	16.4	17.8	19.3	20.5	20.3
	3080371	37	W	F	21.7	15.1	17.2	19.7	20.4	21.2
	376411	41	B	F	16.8	17.1	18.2	24.6	26.7	25.3
	2622521	52	B	F	13.0	14.0	16.2	20.8	21.9	20.1
L2	2796360	36	B	M	14.4	13.7	16.2	23.8	22.2	24.2
	8313270	27	B	M	13.5	14.0	14.3	21.3	23.1	24.0
	474590	59	W	M	11.6	12.3	13.5	20.9	23.2	22.0
	8213390	39	B	M	13.8	13.2	12.6	21.2	22.0	22.2

VL	Case ID	Age	P	Sex	SCDAP	IA	IE	SCDL	IA	IE
	696271	27	B	F	15.6	15.4	18.1	19.7	21.4	21.8
	3080371	37	W	F	25.5	16.2	16.6	20.1	23.0	24.0
	376411	41	B	F	16.6	19.1	16.4	25.2	25.0	26.2
	2622521	52	B	F	12.9	14.1	14.1	23.0	23.6	25.0
L3	2796360	36	B	M	12.0	12.6	13.8	24.7	23.1	23.9
	8313270	27	B	M	13.9	12.4	13.0	23.5	24.4	26.0
	474590	59	W	M	11.9	11.6	14.9	26.1	24.1	24.6
	8213390	39	B	M	14.3	13.4	13.6	20.6	22.9	23.7
	696271	27	B	F	15.2	14.4	18.4	20.2	21.0	23.4
	3080371	37	W	F	19.7	17.5	16.6	23.9	22.6	24.8
	376411	41	B	F	18.2	17.7	14.2	26.0	28.3	23.5
	2622521	52	B	F	14.3	14.3	17.0	22.6	23.6	20.6
L4	2796360	36	B	M	13.5	12.6	13.5	26.1	23.0	23.7
	8313270	27	B	M	11.1	11.5	15.1	24.0	26.4	24.0
	474590	59	W	M	11.9	12.3	14.2	26.4	26.8	26.2
	8213390	39	B	M	15.0	14.2	13.3	22.6	22.8	22.8
	696271	27	B	F	13.6	13.5	13.8	25.8	21.7	25.3
	3080371	37	W	F	12.9	21.8	15.7	26.4	26.3	25.8
	376411	41	B	F	18.2	19.1	18.9	29.6	31.3	31.2
	2622521	52	B	F	14.7	13.4	15.4	24.4	23.8	20.8
L5	2796360	36	B	M	13.7	13.1	15.0	25.2	26.5	26.5
	8313270	27	B	M	14.4	14.2	15.7	25.4	23.6	23.6
	474590	59	W	M	15.8	16.0	13.6	29.9	29.9	30.2
	8213390	39	B	M	16.4	17.3	17.0	25.7	26.2	26.2
	696271	27	B	F	15.7	15.4	19.4	26.1	21.5	27.8
	3080371	37	W	F	20.0	22.3	17.7	27.9	26.8	29.2
	376411	41	B	F	16.5	17.5	15.3	31.1	31.9	28.6
	2622521	52	B	F	16.1	15.9	16.3	29.0	30.2	26.1

Key: VL = Vertebral level; P = Population group; B = Black; W = White M = Male; F = Female; SCDAP = Original spinal canal AP diameter measurement; SCDL = Original spinal canal lateral diameter measurement; IE = Interobserver measurements; IA = Intra-observer measurements. All measurements are in millimetres

APPENDIX E.3: RAW MRI DATA FOR OBSERVER ANALYSIS – SAGITTAL MEASUREMENTS

Table 1: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the pedicle measurements

VL	Case ID	Age	Sex	FH	IA	IE	RD	IA	IE	RP	IA	IE
L1	314460	46	M	17.4	18.4	20.3	.0	.5	4.5	11.4	12.2	12.0
	408471	47	F	19.9	18.7	23.1	-4.0	-3.4	2.5	14.0	13.1	11.3
	530410	41	M	15.5	16.0	21.9	-3.7	-2.9	4.8	12.8	10.5	10.9
	659360	36	M	17.4	17.0	22.6	-2.5	-1.7	6.7	11.5	12.0	8.4
L2	314460	46	M	22.0	18.7	22.3	1.7	.8	3.3	11.7	12.0	14.1
	408471	47	F	20.0	18.5	23.0	-4.1	-3.4	-2.0	14.0	12.9	18.4
	530410	41	M	15.7	17.0	22.3	-1.9	-2.5	-1.8	8.0	11.8	10.1
	659360	36	M	18.6	19.2	23.5	-3.5	-2.8	-5.7	12.6	13.6	8.9
L3	314460	46	M	21.0	19.8	26.5	1.8	2.1	2.3	13.2	13.0	16.2
	408471	47	F	22.4	20.2	25.1	-1.9	-1.3	-2.0	13.8	13.1	15.3
	530410	41	M	18.0	19.3	26.4	-2.7	-3.5	-3.6	11.2	12.9	11.1
	659360	36	M	23.3	22.3	27.2	-5.5	-3.3	-3.2	17.7	15.7	13.5
L4	314460	46	M	25.0	25.3	26.7	3.5	2.9	2.8	12.4	13.5	12.9
	408471	47	F	22.2	20.9	23.5	1.7	2.6	1.7	11.1	13.4	8.9
	530410	41	M	19.7	20.3	23.9	-3.8	-3.1	1.7	14.8	15.6	10.7
	659360	36	M	23.0	24.5	27.6	-5.2	-4.5	-6.3	16.7	17.4	10.9
L5	314460	46	M	20.0	17.2	20.7	-1.2	-1.2	-1.6	7.8	6.9	11.9
	408471	47	F	21.9	21.0	22.0	4.1	4.3	2.9	11.6	10.1	11.8
	530410	41	M	22.4	21.7	24.4	2.4	2.5	3.8	14.9	11.6	12.5
	659360	36	M	24.9	25.2	27.5	-8.5	-5.7	-4.8	20.1	19.7	21.8

Key: VL = Vertebral level; M = Male; F = Female; FH = Original foraminal height measurement; RD = Original root to disc distance measurement; RP = Original root to pedicle distance; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres

Table 2: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the superior, middle, and inferior foraminal diameters

VL	Case ID	Age	Sex	SFD	IA	IE	MFD	IA	IE	IFD	IA	IE
L1	314460	46	M	9.1	9.9	11.9	9.2	8.4	11.6	8.7	7.4	10.0
	408471	47	F	6.6	7.6	11.3	6.1	7.0	10.3	5.8	5.9	8.8
	530410	41	M	9.2	9.7	15.8	10.1	9.1	13.5	8.4	8.1	11.8
	659360	36	M	8.8	7.6	10.4	7.6	6.0	10.7	5.0	5.3	8.2
L2	314460	46	M	8.0	7.7	10.6	8.4	6.7	8.7	7.7	5.2	8.9
	408471	47	F	6.1	4.8	11.2	5.3	4.1	11.3	4.4	4.4	9.4
	530410	41	M	11.0	9.9	15.0	9.7	8.9	15.3	9.2	9.3	13.2
	659360	36	M	7.5	7.8	9.5	7.2	7.1	8.0	4.4	5.5	8.5
L3	314460	46	M	8.3	8.4	8.3	7.8	8.1	8.3	5.1	4.0	7.6
	408471	47	F	7.6	6.4	8.4	5.5	4.3	4.0	5.0	4.8	10.6
	530410	41	M	9.1	7.9	10.1	8.2	6.9	8.0	7.2	6.3	11.6
	659360	36	M	8.2	5.8	6.2	5.7	5.0	10.1	5.6	5.6	9.1
L4	314460	46	M	7.5	8.3	8.3	5.3	5.6	5.0	5.9	4.3	5.8
	408471	47	F	6.7	4.7	9.7	5.6	3.5	12.7	4.2	3.5	5.2
	530410	41	M	6.0	7.7	8.0	6.9	5.6	13.2	6.3	6.4	10.2
	659360	36	M	6.3	5.5	8.6	6.0	4.2	7.9	5.4	3.9	7.1
L5	314460	46	M	7.3	6.8	7.8	5.5	4.8	5.3	0.0	0.0	4.1
	408471	47	F	5.6	5.1	7.5	3.8	3.6	2.0	4.6	3.3	9.9
	530410	41	M	3.5	4.6	5.3	3.1	3.3	3.3	2.0	2.7	9.0
	659360	36	M	4.7	4.5	4.0	4.7	4.8	7.3	3.2	3.6	7.9

Key: VL = Vertebral level; M = Male; F = Female; SFD = Original superior foraminal diameter measurement; MFD = Original middle foraminal diameter measurement; IFD = Original inferior foraminal diameter measurement. IE = Interobserver measurements; IA = Intra-observer measurements. All measurements are in millimetres

APPENDIX E.4: RAW MRI DATA FOR OBSERVER ANALYSIS – CORONAL MEASUREMENTS

Table 1: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the measurements from the nerve root to the disc at the medial border of the pedicle (MedD)

VL	Case ID	Age	Sex	MedD L	IA	IE	MedD R	IA	IE
L1	408471	47	F	-3.6	-4.0	-4.2	-2.8	-2.8	-2.8
	530410	41	M	-4.1	-5.2	-4.2	-3.1	-4.2	-3.4
	659360	36	M	-6.3	-5.9	-7.8	-4.6	-3.5	-5.7
	2411580	58	M	-4.9	-4.8	-6.4	-4.1	-4.1	-4.1
L2	408471	47	F	-4.8	-4.6	-6.9	-3.2	-4.8	-5.1
	530410	41	M	-3.4	-5.0	-2.3	-2.9	-4.6	-2.6
	659360	36	M	-5.9	-6.3	-3.2	-7.2	-7.3	-7.5
	2411580	58	M	-5.4	-5.4	-6.4	-6.8	-6.4	-5.0
L3	408471	47	F				-2.9	-3.8	-3.3
	530410	41	M	-6.5	-7.2	-2.2	-2.5	-4.1	-1.2
	659360	36	M	-9.6	-9.1	-6.4	-7.7	-8.0	-7.2
	2411580	58	M	-5.7	-6.0	-3.4	-8.8	-6.9	-10.0
L4	408471	47	F	-4.0	-4.5	-5.0	-7.8	-5.1	-10.5
	530410	41	M	-3.9	-3.6	-2.3	-7.2	-6.0	-3.9
	659360	36	M	-8.3	-8.8	-5.4	-8.0	-8.3	-7.5
	2411580	58	M	-5.4	-6.6	-2.4	-2.8	-4.2	-2.2
L5	408471	47	F	-7.5	-9.8	-6.2	-8.5	-10.2	-11.6
	530410	41	M	-7.2	-6.5	-6.1	-9.1	-9.5	-9.3
	659360	36	M	-9.8	-8.9	-8.9	-7.5	-8.3	-10.5
	2411580	58	M	-5.4	-4.5	-5.5	-5.8	-4.5	-7.8

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; MedD = Original measurement at the medial border of the pedicle; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres. Measurements with negative values are situated above the superior border of the disc. Empty cells indicate instances where measurements could not be taken

Table 2: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the measurements from the nerve root to the disc at the midline of the pedicle (MidD)

VL	Case ID	Age	Sex	MidD L	IA	IE	MidD R	IA	IE
L1	408471	47	F	-2.1	-2.0	-1.4	0.6	1.0	.4
	530410	41	M	-2.6	-1.9	-2.4	-1.2	-1.1	-2.0
	659360	36	M	0.8	1.1	3.1	4.3	3.1	5.0
	2411580	58	M	1.4	1.2	3.4	2.2	1.8	3.5
L2	408471	47	F	0.0	0.0	.0	2.9	2.0	.0
	530410	41	M	-1.7	-1.9	-1.3	-2.2	-2.0	-1.2
	659360	36	M	1.3	1.3	4.4	1.5	2.1	5.6
	2411580	58	M	-2.0	-2.7	-2.1	-1.7	-2.2	-4.6
L3	408471	47	F				-1.9	-1.6	-2.0
	530410	41	M	-2.9	-2.0	-4.7	-1.0	-1.6	-.7
	659360	36	M	2.3	2.4	2.5	3.7	2.9	4.0
	2411580	58	M	-2.0	-1.7	-2.4	-2.3	-2.2	-2.1
L4	408471	47	F	-1.9	-1.3	-1.7	-1.6	-1.1	-1.2
	530410	41	M	-1.3	-2.4	-1.7	-1.9	-2.5	-4.0
	659360	36	M	3.6	3.1	-.9	3.9	4.6	3.4
	2411580	58	M	2.8	3.0	4.8	5.4	4.3	3.8
L5	408471	47	F	-3.8	-4.7	-3.4	-4.3	-5.3	-8.6
	530410	41	M	-2.7	-3.5	-2.7	-1.5	-2.0	-1.1
	659360	36	M	-1.6	-1.7	-2.4	2.2	2.8	5.5
	2411580	58	M	-2.0	-3.0	-4.6	1.7	2.5	1.5

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; MidD = Original measurement at the midline of the pedicle; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres. Measurements with negative values are situated above the superior border of the disc. Empty cells indicate instances where measurements could not be taken

Table 3: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the measurements from the nerve root to the disc at the lateral border of the pedicle (LatD)

VL	Case ID	Age	Sex	LatD L	IA	IE	LatD R	IA	IE
L1	408471	47	F	4.6	2.7	8.3	5.4	4.0	5.2
	530410	41	M	-1.0	0.0	-1.5	0.4	0.2	.4
	659360	36	M	3.5	3.2	6.1	5.7	4.1	4.6
	2411580	58	M	2.7	3.3	3.4	6.3	4.8	5.5
L2	408471	47	F	2.9	2.1	1.1	3.2	3.0	3.8
	530410	41	M	-1.0	-1.2	-1.6	0.7	1.6	.9
	659360	36	M	3.8	4.1	5.8	4.4	5.6	8.9
	2411580	58	M	3.1	3.0	4.3	2.3	3.0	2.1
L3	408471	47	F				3.4	3.6	3.4
	530410	41	M	-1.6	-1.4	-1.9	2.5	3.0	4.4
	659360	36	M	5.4	6.3	6.8	7.5	8.0	7.8
	2411580	58	M	5.7	5.4	4.3	4.3	3.9	6.0
L4	408471	47	F	3.5	5.6	-2.9	2.7	5.7	2.4
	530410	41	M	4.9	4.4	3.6	5.9	5.5	4.4
	659360	36	M	7.7	8.6	2.9	8.5	9.4	5.5
	2411580	58	M	9.6	10.9	6.4	8.8	8.4	6.4
L5	408471	47	F	3.0	3.4	-1.8	2.7	2.9	-1.1
	530410	41	M	4.2	4.6	5.4	8.9	9.8	8.1
	659360	36	M	3.6	3.4	3.9	4.2	5.4	4.0
	2411580	58	M	4.6	4.7	3.6	6.3	5.2	3.6

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; LatD = Original measurement at the lateral border of the pedicle; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres. Measurements with negative values are situated above the superior border of the disc. Empty cells indicate instances where measurements could not be taken

Table 4: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the measurements from the nerve root to the pedicle at the medial border of the pedicle (MedP)

VL	Case ID	Age	Sex	MedP L	IA	IE	MedP R	IA	IE
L1	408471	47	F	12.8	12.8	15.1	12.5	12.7	10.0
	530410	41	M	10.3	9.9	10.7	11.2	13.2	10.8
	659360	36	M	14.4	12.1	13.3	14.9	12.3	12.8
	2411580	58	M	12.5	12.6	13.9	11.1	11.1	13.1
L2	408471	47	F	13.1	15.5	12.9	11.5	15.3	14.6
	530410	41	M	12.2	13.1	12.2	10.8	10.7	12.0
	659360	36	M	17.2	16.7	14.4	17.5	17.0	15.3
	2411580	58	M	12.2	13.2	12.2	16.1	17.0	15.3
L3	408471	47	F				13.6	15.1	15.4
	530410	41	M	15.3	15.8	14.3	14.4	15.2	11.3
	659360	36	M	20.3	19.6	16.4	21.6	21.5	15.7
	2411580	58	M	15.6	15.5	16.5	17.9	17.4	21.5
L4	408471	47	F	15.2	17.0	15.7	16.0	17.7	18.1
	530410	41	M	13.3	13.3	14.4	15.9	16.6	16.7
	659360	36	M	18.5	19.4	13.9	23.0	21.9	16.1
	2411580	58	M	19.0	18.8	20.8	20.7	19.1	20.8
L5	408471	47	F	15.5	15.1	14.9	13.9	12.8	15.9
	530410	41	M	12.1	13.5	14.2	10.6	11.4	11.2
	659360	36	M	21.3	21.6	17.2	22.1	21.7	18.4
	2411580	58	M	15.1	16.1	15.1	18.7	17.3	23.2

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; MedP = Original measurement at the medial border of the pedicle; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres. Empty cells indicate instances where measurements could not be taken

Table 5: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the measurements from the nerve root to the pedicle at the midline of the pedicle (MidP)

VL	Case ID	Age	Sex	MidP L	IA	IE	MidP R	IA	IE
L1	408471	47	F	11.9	9.1	10.4	5.6	8.5	5.1
	530410	41	M	7.8	7.6	8.8	8.4	8.3	6.7
	659360	36	M	6.4	6.4	5.1	6.4	5.3	4.1
	2411580	58	M	6.5	5.7	10.3	5.5	5.1	4.1
L2	408471	47	F	13.1	13.4	14.8	10.9	10.1	10.8
	530410	41	M	8.4	8.2	5.7	8.7	8.7	5.0
	659360	36	M	9.5	8.3	7.9	8.5	7.6	6.8
	2411580	58	M	8.8	9.6	11.2	8.2	9.3	4.6
L3	408471	47	F				9.9	10.9	8.6
	530410	41	M	10.6	10.1	10.4	12.1	11.2	10.0
	659360	36	M	10.0	9.7	12.0	11.0	10.0	9.2
	2411580	58	M	8.2	9.3	5.1	10.6	10.5	10.4
L4	408471	47	F	9.9	9.6	10.5	9.9	7.9	14.7
	530410	41	M	9.7	6.2	10.3	9.6	6.2	11.3
	659360	36	M	10.3	9.6	9.6	10.0	9.5	11.8
	2411580	58	M	12.5	9.4	16.3	11.6	8.4	13.4
L5	408471	47	F	10.6	9.6	10.0	11.4	12.6	13.5
	530410	41	M	12.4	10.5	12.0	11.8	9.4	12.6
	659360	36	M	11.3	11.1	13.6	12.9	11.7	13.9
	2411580	58	M	8.2	10.0	10.3	9.6	10.9	11.3

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; MidP = Original measurement at the midline of the pedicle; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres. Empty cells indicate instances where measurements could not be taken

Table 6: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the measurements from the nerve root to the pedicle at the lateral border of the pedicle (LatP)

VL	Case ID	Age	Sex	LatP L	IA	IE	LatP R	IA	IE
L1	408471	47	F	12.8	12.2	16.8	10.3	9.7	13.1
	530410	41	M	8.6	10.1	7.9	8.6	9.6	8.9
	659360	36	M	10.8	11.0	11.1	7.7	9.9	8.5
	2411580	58	M	7.1	7.3	5.0	6.2	5.7	2.9
L2	408471	47	F	13.4	16.2	10.4	10.9	10.8	10.9
	530410	41	M	10.9	10.4	7.0	9.2	9.5	9.7
	659360	36	M	7.7	7.5	1.2	6.9	7.6	6.5
	2411580	58	M	6.5	5.6	4.5	6.5	6.4	7.6
L3	408471	47	F				9.9	9.4	9.5
	530410	41	M	10.6	11.2	11.4	8.6	8.5	7.2
	659360	36	M	7.5	6.6	8.0	8.5	7.1	5.5
	2411580	58	M	6.0	6.3	7.9	5.4	6.0	4.3
L4	408471	47	F	5.3	5.9	5.7	6.1	7.2	6.7
	530410	41	M	6.2	7.6	6.0	7.9	8.7	10.7
	659360	36	M	6.9	6.8	5.6	7.7	7.6	11.9
	2411580	58	M	5.7	5.1	5.2	2.3	2.7	3.4
L5	408471	47	F	7.7	6.2	4.1	12.1	10.6	14.0
	530410	41	M	7.8	7.1	3.4	6.4	6.1	10.8
	659360	36	M	8.2	8.5	11.6	10.8	9.6	12.3
	2411580	58	M	4.0	3.9	3.6	2.6	2.8	3.4
<p><i>Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; LatP = Original measurement at the lateral border of the pedicle; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres. Empty cells indicate instances where measurements could not be taken</i></p>									

APPENDIX E.5: RAW MRI DATA FOR OBSERVER ANALYSIS – TRANSVERSE MEASUREMENTS

Table 1: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the transverse foraminal diameter (FDT) measurements taken superior to the disc

VL	Case ID	Age	Sex	FDT L	IA	IE	FDT R	IA	IE
L3	1750490	49	M	7.0	7.8	5.1	7.4	7.9	6.4
	1858360	36	M	6.9	6.6	3.3	6.8	5.9	5.3
	2411580	58	M	8.2	7.8	6.5	6.6	5.4	6.0
L4	1750490	49	M	7.4	7.3	6.5	7.0	7.0	6.4
	1858360	36	M	8.1	7.4	6.2	8.1	7.2	6.8
	2411580	58	M	6.2	6.0	6.1	5.3	4.7	4.9
L5	530410	41	M	7.9	7.2	8.8	7.5	6.7	8.8
	726421	42	F	8.5	8.7	6.7	7.6	6.7	6.7
	1750490	49	M	6.8	6.5	5.1	7.2	7.1	5.1
	1858360	36	M	7.1	6.9	5.3	8.2	8.2	5.3
	2411580	58	M	7.0	7.8	5.3	6.6	6.6	5.3

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; FDT = Original transverse foraminal diameter measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres

Table 2: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the root to disc (RD) measurements taken superior to the disc

VL	Case ID	Age	Sex	RD L	IA	IE	RD R	IA	IE
L3	1750490	49	M	2.2	2.7	2.4	2.4	3.1	2.1
	1858360	36	M	2.5	3.0	2.9	2.5	3.7	2.6
	2411580	58	M	2.4	2.2	2.7	1.3	1.9	1.6
L4	1750490	49	M	2.3	2.2	2.5	2.5	2.2	2.1
	1858360	36	M	4.4	3.8	4.0	4.0	3.7	3.5
	2411580	58	M	2.7	2.5	3.8	2.2	2.4	2.2
L5	530410	41	M	2.7	2.5	2.6	2.2	1.2	1.8
	726421	42	F	2.2	2.3	2.4	3.0	3.0	2.5
	1750490	49	M	1.9	2.8	1.7	1.4	1.3	1.9
	1858360	36	M	2.8	2.9	1.7	3.2	3.3	3.0
	2411580	58	M	2.5	2.9	2.0	2.2	1.5	1.6

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; RD = Original root to disc measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres

Table 3: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the root to facet joint (RF) measurements taken superior to the disc

VL	Case ID	Age	Sex	RF L	IA	IE	RF R	IA	IE
L3	1750490	49	M	2.1	1.3	1.9	2.5	1.9	1.9
	1858360	36	M	3.7	3.2	2.7	2.6	3.0	2.7
	2411580	58	M	2.4	3.1	2.5	2.3	2.7	2.5
L4	1750490	49	M	1.7	1.5	1.7	.9	1.0	.3
	1858360	36	M	2.0	2.7	2.6	1.5	1.7	1.7
	2411580	58	M	2.9	2.1	2.8	1.8	1.2	2.0
L5	530410	41	M	4.2	3.7	4.5	3.5	2.7	4.3
	726421	42	F	2.7	2.6	3.3	3.1	4.1	3.2
	1750490	49	M	1.3	1.2	2.1	1.8	2.6	2.0
	1858360	36	M	1.4	1.6	2.7	1.5	1.6	2.7
	2411580	58	M	1.0	1.4	2.6	1.3	1.8	1.3

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; RF = Original root to facet joint measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres

Table 4: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the target angle (TA) measurements taken superior to the disc

VL	Case ID	Age	Sex	TA L	IA	IE	TA R	IA	IE
L3	1750490	49	M	23.2	22.7	24.7	25.3	23.0	22.6
	1858360	36	M	19.6	23.0	20.1	19.3	22.0	20.0
	2411580	58	M	16.4	16.4	13.8	16.5	17.4	17.3
L4	1750490	49	M	20.1	23.0	22.9	18.9	18.0	17.8
	1858360	36	M	19.9	20.8	18.8	19.1	19.4	19.9
	2411580	58	M	14.5	15.2	15.0	14.5	13.8	12.7
L5	530410	41	M	13.3	9.4	10.8	14.8	10.7	11.8
	726421	42	F	20.2	16.3	17.4	20.4	18.7	20.3
	1750490	49	M	16.4	15.5	14.7	19.3	19.6	18.9
	1858360	36	M	11.5	12.1	12.6	12.8	13.7	10.0
	2411580	58	M	17.2	18.7	18.2	16.1	16.7	11.6

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; TA = Original target angle measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in degrees

Table 5: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the transverse foraminal diameter (FDT) measurements taken inferior to the disc

VL	Case ID	Age	Sex	FDT L	IA	IE	FDT R	IA	IE
L3	1750490	49	M	8.2	7.9	4.5	7.4	7.2	3.8
	1858360	36	M	7.4	6.0	4.0	7.9	6.9	4.3
	2411580	58	M	7.4	6.9	4.0	8.0	7.4	5.7
L4	1750490	49	M	6.7	6.8	6.3	6.1	5.8	5.0
	1858360	36	M	6.8	5.2	6.0	7.5	6.9	6.9
	2411580	58	M	6.4	5.8	6.0	6.3	5.4	3.5
L5	530410	41	M	5.0	4.3	5.3	5.9	4.9	4.9
	726421	42	F	5.6	4.1	8.4	7.6	6.0	5.3
	1750490	49	M	7.7	8.9	7.9	6.6	7.5	6.6
	1858360	36	M	6.4	6.4	6.1	6.6	6.7	6.6
	2411580	58	M	8.2	7.2	6.6	9.5	8.9	6.9

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; FDT = Original transverse foraminal diameter measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres

Table 6: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the root to disc (RD) measurements taken inferior to the disc

VL	Case ID	Age	Sex	RD L	IA	IE	RD R	IA	IE
L3	1750490	49	M	2.3	2.4	2.0	3.3	3.5	3.0
	1858360	36	M	2.4	2.6	2.3	2.7	2.5	2.5
	2411580	58	M	2.2	2.4	2.1	2.1	2.2	1.9
L4	1750490	49	M	2.0	2.3	3.0	2.1	2.6	3.5
	1858360	36	M	2.5	2.8	2.5	2.6	3.0	3.5
	2411580	58	M	1.9	1.7	1.9	1.9	2.2	1.0
L5	530410	41	M	2.5	2.6	3.0	1.6	1.7	3.2
	726421	42	F	1.7	1.5	1.7	2.1	1.9	2.9
	1750490	49	M	3.5	3.5	4.5	3.5	2.9	3.0
	1858360	36	M	2.1	3.9	2.0	2.5	3.9	2.8
	2411580	58	M	3.0	3.4	3.7	3.5	3.9	3.0

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; RD = Original root to disc measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres

Table 7: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the root to facet joint (RF) measurements taken inferior to the disc

VL	Case ID	Age	Sex	RF L	IA	IE	RF R	IA	IE
L3	1750490	49	M	2.9	3.0	2.4	1.5	1.1	2.5
	1858360	36	M	6.6	4.2	3.0	5.3	3.6	5.5
	2411580	58	M	5.3	4.7	5.0	4.9	4.3	3.3
L4	1750490	49	M	8.7	7.2	8.4	8.4	7.6	8.6
	1858360	36	M	1.1	.8	2.2	1.5	1.9	2.9
	2411580	58	M	4.3	4.0	3.9	3.8	3.5	3.3
L5	530410	41	M	4.3	3.9	2.6	3.8	3.3	4.4
	726421	42	F	4.2	3.0	5.0	6.1	5.2	3.1
	1750490	49	M	3.7	4.7	1.2	3.3	4.3	1.7
	1858360	36	M	2.1	3.7	1.9	1.1	2.8	3.5
	2411580	58	M	6.6	5.4	4.0	5.2	4.4	3.7

Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; RF = Original root to facet joint measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in millimetres

Table 8: Table indicating the inter- and intra-observer measurements used to perform observer analyses for the target angle (TA) measurements taken inferior to the disc

VL	Case ID	Age	Sex	TA L	IA	IE	TA R	IA	IE
L3	1750490	49	M	24.6	23.5	20.2	20.4	19.5	22.4
	1858360	36	M	13.3	16.1	17.3	13.5	17.3	15.9
	2411580	58	M	15.6	15.5	22.8	15.9	16.1	16.7
L4	1750490	49	M	18.3	17.9	19.7	19.6	18.7	20.1
	1858360	36	M	15.9	14.8	14.0	18.7	17.3	26.7
	2411580	58	M	13.2	15.5	15.1	15.4	15.7	20.4
L5	530410	41	M	11.6	11.8	14.7	11.0	9.7	16.4
	726421	42	F	8.3	5.7	7.1	8.5	5.9	13.8
	1750490	49	M	16.1	13.6	15.7	18.6	16.4	15.4
	1858360	36	M	14.7	14.8	14.5	13.8	12.4	10.5
	2411580	58	M	12.3	12.8	13.4	9.9	9.8	11.1
<p><i>Key: VL = Vertebral level; M = Male; F = Female; L = Left side; R = Right side; TA = Original target angle measurement; IA = Intra-observer measurements; IE = Interobserver measurements. All measurements are in degrees</i></p>									