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APPENDICES

APPENDIX 3

Amount of fluoride released from tooth-colored restorative materials (ppm)

RMGC = Resin Modified Glass ionomer Cement

PMRC = Polyacid Modified Resin Composite

RMGC	24 hours	7 days	30 days
	6.7	8.23	16.4
	7.5	9.53	17.4
	6.5	11.1	18.8
	5.3	7.5	18.3
	6.2	7.74	16.7
	5.7	9.15	15.9
	6.9	12.3	21.9
	7.8	10.7	21.2
	5.5	11.4	17.7
	7.6	12.1	21.4
	8.98	12.6	27.2
	8.15	13.1	25
	8.22	9.9	29.1
	5.28	11	23.8
	6.46	9.31	23.1
	6.67	10.1	24.4
	8.19	14.4	23.3
	5.26	13	23.7
	5.51	8.7	22.2
	6.3	12.87	21.4

PMRC	24 hours	7 days	30 days
	5.3	12.1	16.3
	6.2	12.4	17.3
	5.2	10	22.6
	4.5	11.4	19.9
	5.2	9.03	15.8
	4.4	10.3	21
	6.1	9.3	18.1
	4.2	11.2	18.3
	5.3	8.13	23.4
	6.5	10.8	15
	6.25	11.03	21.4
	3.81	11	21.5
	4.73	14	21.7
	4.54	7.8	18.8
	3.27	9.61	20.3
	4.4	9.1	21.9
	5.51	13.5	19.6
	5.78	11	25.3
	3.9	10	20.1
	4.6	8.12	25.2

Summary the amount of fluoride released from Resin modified glass ionomer cement in 24 hours,7days and 30 days

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
24 hours	20	6.7360	1.1452	.2561	5.26	8.98
7 days	20	10.7365	1.9748	.4416	7.50	14.40
30 days	20	21.4450	3.6759	.8220	15.90	29.10

One way ANOVA of Resin modified GIC in 24 hours,7days and 30 days

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2313.538	2	1156.769	185.344	.000
Within Groups	355.748	57	6.241		
Total	2669.286	59			

Post Hoc test (Bonferroni at $p<0.05$)

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
1	2	-4.0005	0.79	0	-5.9492	-2.0518
	3	-14.709	0.79	0	-16.6577	-12.7603
2	1	4.0005	0.79	0	2.0518	5.9492
	3	-10.7085	0.79	0	-12.6572	-8.7598
3	1	14.709	0.79	0	12.7603	16.6577
	2	10.7085	0.79	0	8.7598	12.6572

Summary the amount of fluoride released from Polyacid modified resin composite in 24 hours,7days and 30 days

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
24 hours	20	4.9845	.8962	.2004	3.27	6.50
7 days	20	10.4910	1.7022	.3806	7.80	14.00
30 days	20	20.1750	2.8689	.6415	15.00	25.30

One way ANOVA of Polyacid modified resin composite in 24 hours,7days and 30 days

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2365.685	2	1182.842	297.418	.000
Within Groups	226.691	57	3.977		
Total	2592.375	59			

Post Hoc test (Bonferroni at p<0.05)

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
1	2	-5.5065	.6306	.000	-7.0621	-3.9509
	3	-15.1905	.6306	.000	-16.7461	-13.6349
2	1	5.5065	.6306	.000	3.9509	7.0621
	3	-9.6840	.6306	.000	-11.2396	-8.1284
3	1	15.1905	.6306	.000	13.6349	16.7461
	2	9.6840	.6306	.000	8.1284	11.2396

Statistical comparison of Resin modified glass ionomer cement and Polyacid modified resin composite versus time using Paired-Samples T Test

	Paired Difference				df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence		
24 hrs	1.7515	1.2449	.2784	1.1689	19	.000
24 hrs	1.7515	1.2449	.2784	1.1689	19	.000
7 days	.2455	2.5867	.5784	-.9651	19	.676
7 days	.2455	2.5867	.5784	-.9651	19	.676
30 days	1.2700	3.8575	.8626	-.5354	19	.157
30 days	1.2700	3.8575	.8626	-.5354	19	.157

APPENDIX 4.1

The comparison of surface microhardness of human enamel between two positions

d1=0.1 mm from the restoration at distal side

d2=0.2 mm from the restoration at distal side

d3=0.3 mm from the restoration at distal side

d1 left	d1right	d2left	d2right	d3left	d3right
252	273	246	265	274	258
240	243	275	284	285	281
270	298	273	282	299	277
291	297	262	283	336	348
300	306	322	308	296	288
321	290	283	257	291	304
258	264	304	282	275	309
286	244	275	274	321	281
258	264	319	347	272	264
299	284	322	304	289	267
301	262	313	317	297	294
299	290	306	308	262	265
252	249	259	265	279	285
281	282	310	309	259	274
245	252	268	276	244	241
246	238	262	252	242	236
303	261	237	243	241	252
231	248	243	238	300	299
282	291	301	293	300	280
269	268	252	258	234	243

c1=0.1 mm from the restoration at cervical side

c2=0.2 mm from the restoration at cervical side

c3=0.3 mm from the restoration at cervical side

c1left	c1right	c2left	c2right	c3left	c3right
287	300	287	289	300	299
318	310	258	269	266	248
252	238	268	289	273	272
301	319	259	275	309	294
293	272	243	250	295	297
238	247	299	308	301	314
299	305	283	306	271	254
264	262	343	328	330	327
274	265	247	248	254	258
269	268	284	289	231	237
242	255	247	249	270	256
273	265	269	255	275	277
247	263	283	287	261	245
248	259	262	258	287	274
304	291	270	275	270	253
278	267	244	242	246	249
275	303	268	271	299	309
300	236	243	231	281	301
243	251	243	245	247	243
252	232	243	241	251	264

o1=0.1 mm from the restoration at occlusal side

o2=0.2 mm from the restoration at occlusal side

o3=0.3 mm from the restoration at occlusal side

o1left	o1right	o2left	o2right	o3left	o3right
240	261	304	332	297	280
284	267	263	261	282	285
300	272	293	293	286	268
304	277	271	260	333	339
266	264	283	308	295	291
294	292	283	251	263	260
326	361	268	259	260	257
291	297	330	311	318	300
297	276	277	277	263	269
260	258	318	308	247	255
281	295	241	234	280	282
293	281	250	283	252	269
243	245	275	260	284	279
240	233	247	241	230	243
294	290	247	230	298	301
280	297	287	292	301	302
248	242	279	272	302	298
233	247	287	299	230	237
267	268	256	264	238	239
246	274	245	253	265	252

Paired-Samples T Test of surface microhardness of enamel between two positions

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	d1 left	274.20	20	25.55	5.71
	d1 right	270.20	20	20.90	4.67
Pair 2	d2 left	281.60	20	28.26	6.32
	d2 right	282.25	20	27.51	6.15
Pair 3	d3 left	279.80	20	27.16	6.07
	d3 right	277.30	20	26.49	5.92
Pair 4	c1 left	272.85	20	24.24	5.42
	c1 right	270.40	20	25.85	5.78
Pair 5	c2 left	267.15	20	24.94	5.58
	c2 right	270.25	20	26.15	5.85
Pair 6	c3 left	275.85	20	24.65	5.51
	c3 right	273.55	20	27.07	6.05
Pair 7	o1 left	274.35	20	26.32	5.89
	o1 right	274.85	20	27.71	6.20
Pair 8	o2 left	275.20	20	24.38	5.45
	o2 right	274.40	20	28.03	6.27
Pair 9	o3 left	276.20	20	28.68	6.41
	o3 right	275.30	20	25.61	5.73

Paired-Samples T Test

		Paired Differences			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	d1 left - d1 right	4.00	20.35	4.55	.879	19	.390
Pair 2	d2 left - d2 right	-.65	14.15	3.16	-.205	19	.839
Pair 3	d3 left - d3 right	2.50	16.61	3.71	.673	19	.509
Pair 4	c1 left - c1 right	2.45	19.90	4.45	.551	19	.588
Pair 5	c2 left - c2 right	-3.10	10.16	2.27	-1.364	19	.188
Pair 6	c3 left - c3 right	2.30	11.64	2.60	.883	19	.388
Pair 7	o1 left - o1 right	-.50	17.27	3.86	-.129	19	.898
Pair 8	o2 left - o2 right	.80	16.42	3.67	.218	19	.830
Pair 9	o3 left - o3 right	.90	9.82	2.20	.410	19	.686

Descriptive of the surface hardness of enamel in the three locations from the restoration

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
0.1 mm	120	272.8083	24.7217	2.2568	231.00	361.00
0.2 mm	120	275.1417	26.5995	2.4282	230.00	347.00
0.3 mm	120	276.3333	26.1448	2.3867	230.00	348.00
Total	360	274.7611	25.8040	1.3600	230.00	361.00

ANOVA compared the three locations from the restoration

LEVEL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	771.606	2	385.803	.578	.562
Within Groups	238267.850	357	667.417		
Total	239039.456	359			

APPENDIX 4.2

The comparison of surface microhardness of human dentin between two positions

d1=0.1 mm from the restoration at distal side

d2=0.2 mm from the restoration at distal side

d3=0.3 mm from the restoration at distal side

d1left	d1right	d2left	d2right	d3left	d3right
47.8	51.1	43.8	41.1	37.2	38.1
41.7	44.2	40.2	37.9	41.5	35.6
42.1	43.4	39.3	38.1	35.6	34.7
46.7	44.2	56.2	55.1	46.1	46.6
41.7	39.7	40.2	37.9	35.6	36.9
42.1	43.4	39.3	38.1	34.7	35.6
44.2	46.7	56.2	55.1	46.1	46.6
59.9	56.7	57	54.3	57.2	55
46.5	45.6	44.5	43.5	43.2	40.7
56.7	59.9	54.3	57.5	57.2	55
38.6	36.2	35.9	42.2	47.9	46.8
51.1	47.8	43.8	41.1	37.2	38.1
59.7	57.1	62.2	62.4	57.4	59.7
38.6	36.2	35.9	35.1	47.9	46.8
52.4	55	51	45.8	40.4	42.3
62.2	54.1	47	41.3	38	37.8
56.8	61.3	57.2	56.2	54.1	54.5
37.6	44.3	33.6	38.8	32.1	32.1
52.3	51.2	43.2	48.5	48.3	50.1
62.2	59.7	53.4	55.4	54.1	53.1

c1=0.1 mm from the restoration at cervical side

c2=0.2 mm from the restoration at cervical side

c3=0.3 mm from the restoration at cervical side

c1left	c1right	c2left	c2right	c3left	c3right
47	47.8	46.8	46.1	45.5	43.7
40.5	48.8	53.8	51.2	51.9	49.8
40.7	38.8	43	41.3	41.6	40
42.3	45.8	45.8	46.8	42.4	40.7
40.5	48.8	51.2	53.8	51.9	49.8
40.7	42.7	41.3	41.8	41.6	40
42.3	45.8	45.8	46.8	42.4	40.7
58.2	58.7	54.2	50.6	51	52.8
56.4	51.4	60.8	59.7	56.5	59.5
47.9	49.2	52.6	53.2	50.3	51.6
59	57.8	54.1	53.8	55.8	56.5
47	47.8	46.8	46.1	43.7	45.5
47.9	47.3	52.6	53.2	50.3	51.6
59.6	59	54.1	53.8	55.8	56.5
57.6	57.2	51.1	50.1	44.6	42.9
47.2	45.9	63.9	56.8	45.8	44.7
60.6	62.9	56.7	65.6	62.5	61.3
55.6	57.1	42.6	47.9	44.4	44.9
54.6	51.8	53.6	49.4	63.5	59.6
65.2	62.5	53.6	49.4	63.5	59.6

o1=0.1 mm from the restoration at occlusal side

o2=0.2 mm from the restoration at occlusal side

o3=0.3 mm from the restoration at occlusal side

o1left	o1right	o2left	o2right	o3left	o3right
47.3	45.4	48.5	44.2	51.6	53.1
47.6	49.3	49.4	51.6	48.9	46.6
38.8	43	40.2	36	45	43.9
47.2	48.2	41.1	41.4	57.1	57.5
47.6	49.3	49.4	51.6	48.9	46.6
38.8	38.1	40.2	36	45	43.9
48.2	47.2	41.1	41.4	57.5	57.1
46.3	46.2	44.9	46.4	51.7	57.2
47.2	45.7	43.6	49.7	54.1	53.2
62.5	58.1	60.8	62.4	60.3	61.7
49.9	50.1	56.8	56.2	52.8	56
45.4	47.3	48.5	44.2	51.6	53.1
60.1	58.1	60.8	62.4	60.3	61.7
49.9	50.1	56.8	56.2	52.8	52.1
60.8	55.6	55.1	54.2	59.9	54.2
62.2	63.5	66.8	57.1	59.3	57.5
53.1	50.3	69.9	63.9	51.1	53.7
51.2	51.6	39.7	41.5	47.1	49.4
52.6	56.7	52.4	54	58.8	57.8
54.2	52.4	48.2	50.2	60.2	55.8

Paired-Samples T Test of surface microhardness of dentin between two positions

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	d1 left	49.045	20	8.312	1.859
	d1 right	48.890	20	7.759	1.735
Pair 2	d2 left	46.710	20	8.557	1.913
	d2 right	46.270	20	8.431	1.885
Pair 3	d3 left	44.590	20	8.273	1.850
	d3 right	44.305	20	8.232	1.841
Pair 4	c1 left	50.540	20	8.065	1.803
	c1 right	51.355	20	6.737	1.506
Pair 5	c2 left	51.220	20	5.929	1.326
	c2 right	50.870	20	5.773	1.291
Pair 6	c3 left	50.250	20	7.371	1.648
	c3 right	49.585	20	7.376	1.649
Pair 7	o1 left	50.545	20	6.793	1.519
	o1 right	50.310	20	5.895	1.318
Pair 8	o2 left	50.710	20	9.055	2.025
	o2 right	50.030	20	8.458	1.891
Pair 9	o3 left	53.700	20	5.199	1.163
	o3 right	53.605	20	5.242	1.172

Paired-Samples T Test

		Paired Differences			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	d1left – d1 right	.155	3.494	.781	.198	19	.845
Pair 2	d2 left-d2 right	.440	3.286	.735	.599	19	.556
Pair 3	d3 left-d3 right	.285	1.924	.430	.663	19	.516
Pair 4	c1 left-c1 right	-.815	3.336	.746	-1.092	19	.288
Pair 5	c2 left-c2 right	.350	3.451	.772	.454	19	.655
Pair 6	c3 left-c3 right	.665	1.922	.430	1.548	19	.138
Pair 7	o1 left-o1 right	.235	2.455	.549	.428	19	.673
Pair 8	O2 left-o2 right	.680	3.691	.825	.824	19	.420
Pair 9	O3 left-o3 right	9.500E-02	2.631	.588	.161	19	.873

Descriptive of the surface hardness of dentin in the three locations from the restoration

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	120	50.1142	7.2085	0.658	36.2	65.2
2	120	49.3017	7.9128	0.7223	33.6	69.9
3	120	49.3392	7.8909	0.7203	32.1	63.5
Total	360	49.585	7.6655	0.404	32.1	69.9

ANOVA compared the three locations from the restoration

LEVEL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	50.488	2	25.244	.428	.652
Within Groups	21044.191	357	58.947		
Total	21094.679	359			

APPENDIX 4.3

The microhardness test of enamel surface adjacent to different restorative materials after soaking in the demineralization solution for 24 hours

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	291	49.2	241.8	279	45.6	233.4	305	43.5	261.5
	2	251	50.7	200.3	277	50	227	295	53.4	241.6
	3	297	46.7	250.3	277	49	228	291	54.8	236.2
	4	252	48.5	203.5	279	48.9	230.1	276	54.9	221.1
	5	249	52.6	196.4	259	51.7	207.3	262	56.1	205.9
	6	279	49.5	229.5	265	50.1	214.9	265	56.7	208.3
	7	287	51.8	235.2	244	55.3	188.7	265	54	211
	8	235	59.3	175.7	283	49.9	233.1	295	57.6	237.4
	9	300	55.4	244.6	306	47.2	258.8	297	48.4	248.6
Teeth 2	1	294	75.2	218.8	295	94.5	200.5	252	101	151
	2	290	76.9	213.1	287	91.4	195.6	299	102	197
	3	287	61.1	225.9	292	89.4	202.6	269	98	171
	4	291	60.4	230.6	286	61.5	224.5	285	66.3	218.7
	5	301	60.8	240.2	300	63.7	236.3	300	64.9	235.1
	6	293	60.9	232.1	280	67.7	212.3	299	62.2	236.8
	7	304	53.7	250.3	301	62	239	295	62.4	232.6
	8	264	57.7	206.3	283	55.7	227.3	275	63.1	211.9
	9	262	67.3	194.7	287	71.1	215.9	277	61.2	215.8

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 3	1	300	128	172	293	122	171	269	140	129
	2	264	129	135	261	116	145	250	143	107
	3	271	132	139	258	130	128	287	131	156
	4	237	88.2	148.8	298	102	196	281	110	171
	5	224	74.4	149.6	262	108	154	299	112	187
	6	241	90.6	150.4	248	101	147	263	103	160
	7	298	86.5	211.5	293	89.9	203.1	301	140	161
	8	269	117	152	305	110	195	289	122	167
	9	281	101	180	274	112	162	278	118	160
Teeth 4	1	235	70.3	164.7	242	76.9	165.1	230	87.4	142.6
	2	223	80.2	142.8	232	80.3	151.7	224	77	147
	3	224	67.1	156.9	231	69.1	161.9	249	67.8	181.2
	4	228	45.1	182.9	247	52.3	194.7	267	55	212
	5	258	45.5	212.5	260	45.3	214.7	245	48.4	196.6
	6	251	56.6	194.4	265	56.6	208.4	231	62.4	168.6
	7	250	64.4	185.6	262	56.5	205.5	266	65.4	200.6
	8	276	72.6	203.4	254	62.6	191.4	275	70.2	204.8
	9	243	65	178	250	58.4	191.6	241	60.1	180.9

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 5	1	311	70.2	240.8	297	67.8	229.2	287	72.1	214.9
	2	276	71.3	204.7	304	76.4	227.6	311	75.3	235.7
	3	300	75.6	224.4	288	72	216	270	69.5	200.5
	4	295	62.2	232.8	277	67.7	209.3	261	69.1	191.9
	5	314	70.2	243.8	308	76.9	231.1	306	71.2	234.8
	6	287	69.8	217.2	291	70.6	220.4	287	70.3	216.7
	7	313	91.6	221.4	299	94.5	204.5	298	80.1	217.9
	8	254	85.4	168.6	276	83.1	192.9	311	69.5	241.5
	9	298	79.2	218.8	311	75.3	235.7	299	91.8	207.2
Teeth 6	1	281	65	216	287	64.8	222.2	292	65.5	226.5
	2	271	71.1	199.9	283	68.8	214.2	282	72.1	209.9
	3	279	67.8	211.2	280	69.8	210.2	279	68.4	210.6
	4	287	79.8	207.2	270	79.5	190.5	300	79.5	220.5
	5	282	81.2	200.8	298	72.1	225.9	305	82.6	222.4
	6	301	70.3	230.7	283	75.4	207.6	291	70.3	220.7
	7	267	75.2	191.8	287	67.5	219.5	281	68.7	212.3
	8	281	70.2	210.8	283	62.4	220.6	290	75.4	214.6
	9	291	64.5	226.5	279	73.5	205.5	276	63.1	212.9

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 7	1	184	94.8	89.2	179	109	70	190	104	86
	2	185	103	82	186	100	86	184	107	77
	3	179	99.6	79.4	171	98.7	72.3	178	99.9	78.1
	4	167	96.6	70.4	179	103	76	180	107	73
	5	179	104	75	164	101	63	175	105	70
	6	175	109	66	174	99.1	74.9	164	110	54
	7	164	114	50	189	107	82	179	105	74
	8	167	107	60	171	103	68	183	111	72
	9	175	98.9	76.1	172	101	71	169	97.6	71.4
Teeth 8	1	296	106	190	294	111	183	278	98.7	179.3
	2	280	119	161	283	101	182	290	108	182
	3	289	99.3	189.7	290	107	183	289	110	179
	4	259	112	147	268	119	149	258	126	132
	5	266	117	149	273	125	148	264	109	155
	6	273	123	150	269	108	161	271	110	161
	7	263	97.1	165.9	265	102	163	267	107	160
	8	277	105	172	271	99.4	171.6	270	105	165
	9	269	107	162	273	109	164	279	108	171

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 9	1	253	57.5	195.5	264	57.4	206.6	251	60.4	190.6
	2	262	67.3	194.7	271	75.4	195.6	260	79.5	180.5
	3	259	70.9	188.1	258	70.1	187.9	267	69.3	197.7
	4	285	95.3	189.7	295	95.1	199.9	267	110	157
	5	288	94.1	193.9	280	112	168	270	97	173
	6	279	108	171	285	99.3	185.7	258	101	157
	7	264	74.2	189.8	257	70.6	186.4	247	65.3	181.7
	8	270	61.8	208.2	260	56.8	203.2	242	72.1	169.9
	9	259	70.1	188.9	261	62.4	198.6	269	59.4	209.6
Teeth 10	1	248	83.4	164.6	271	99.3	171.7	269	103	166
	2	269	98.7	170.3	280	80.9	199.1	279	87.6	191.4
	3	279	97.1	181.9	285	107	178	277	98.4	178.6
	4	246	90.1	155.9	263	104	159	267	112	155
	5	263	99.8	163.2	270	100	170	260	87.2	172.8
	6	259	104	155	261	93.6	167.4	274	93	181
	7	281	93.6	187.4	270	100	170	271	80.1	190.9
	8	272	87.6	184.4	271	82.4	188.6	283	97.8	185.2
	9	263	99.7	163.3	260	98.1	161.9	263	108	155

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 11	1	110	67.5	42.5	111	77	34	113	87	26
	2	103	79	24	115	65	50	123	64.6	58.4
	3	120	68.3	51.7	113	70.3	42.7	104	78.1	25.9
	4	113	64.8	48.2	115	68.1	46.9	110	77.6	32.4
	5	117	69.3	47.7	121	72.1	48.9	121	69	52
	6	130	78	52	109	64.3	44.7	109	63.5	45.5
	7	127	81	46	117	72.4	44.6	126	63	63
	8	135	60	75	122	79.1	42.9	132	66.5	65.5
	9	129	71.3	57.7	130	62.5	67.5	119	78.7	40.3
Teeth 12	1	330	82	248	305	79.6	225.4	310	83.7	226.3
	2	324	78.6	245.4	310	83	227	324	79.8	244.2
	3	327	83.7	243.3	320	80.4	239.6	326	83	243
	4	298	82.4	215.6	290	67.8	222.2	302	59.9	242.1
	5	305	86.2	218.8	309	66.2	242.8	329	67	262
	6	310	89	221	304	69.8	234.2	299	63.4	235.6
	7	297	54	243	298	57.6	240.4	311	66.2	244.8
	8	303	56.8	246.2	300	57	243	300	63.2	236.8
	9	308	53.2	254.8	306	60.3	245.7	314	64.9	249.1

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 13	1	294	75.2	218.8	295	94.5	200.5	287	101	186
	2	290	76.9	213.1	287	91.4	195.6	292	102	190
	3	287	61.1	225.9	292	89.4	202.6	269	98	171
	4	291	60.4	230.6	286	61.5	224.5	285	63.3	221.7
	5	301	60.8	240.2	300	63.7	236.3	300	64.9	235.1
	6	293	62.9	230.1	280	67.7	212.3	299	62.2	236.8
	7	304	53.7	250.3	301	62	239	295	62.4	232.6
	8	284	57.7	226.3	283	55.7	227.3	275	63.1	211.9
	9	282	67.3	214.7	287	71.1	215.9	277	61.2	215.8
Teeth 14	1	311	70.2	240.8	297	67.8	229.2	287	72.1	214.9
	2	276	71.3	204.7	304	76.4	227.6	311	75.3	235.7
	3	300	75.6	224.4	288	72	216	270	69.5	200.5
	4	295	62.2	232.8	277	67.7	209.3	261	69.1	191.9
	5	314	70.2	243.8	308	76.9	231.1	306	71.2	234.8
	6	287	69.8	217.2	291	70.6	220.4	287	70.3	216.7
	7	313	91.6	221.4	299	94.5	204.5	284	80.1	203.9
	8	254	85.4	168.6	276	83.1	192.9	263	69.5	193.5
	9	298	79.2	218.8	311	75.3	235.7	299	91.8	207.2

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 15	1	281	65	216	287	64.8	222.2	292	65.5	226.5
	2	271	71.1	199.9	290	68.8	221.2	282	72.1	209.9
	3	279	67.8	211.2	280	69.8	210.2	279	68.4	210.6
	4	287	79.8	207.2	270	79.5	190.5	300	79.5	220.5
	5	282	81.2	200.8	298	72.1	225.9	305	82.6	222.4
	6	301	70.3	230.7	283	75.4	207.6	291	70.3	220.7
	7	267	75.2	191.8	287	67.5	219.5	281	68.7	212.3
	8	281	70.2	210.8	283	62.4	220.6	290	75.4	214.6
	9	291	64.5	226.5	279	73.5	205.5	276	63.1	212.9
Teeth 16	1	261	84.5	176.5	297	104	193	248	87	161
	2	295	95.3	199.7	267	84.5	182.5	290	97.3	192.7
	3	307	101	206	272	98.1	173.9	283	103	180
	4	311	111	200	317	121	196	304	121	183
	5	327	110	217	336	131	205	293	134	159
	6	300	135	165	322	112	210	301	109	192
	7	196	75.5	120.5	209	99.1	109.9	194	134	60
	8	209	72.3	136.7	194	80.8	113.2	179	97.3	81.7
	9	187	79.8	107.2	189	116	73	184	123	61

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 17	1	253	57.5	195.5	264	57.4	206.6	251	60.4	190.6
	2	262	67.3	194.7	271	75.4	195.6	226	79.5	146.5
	3	259	70.9	188.1	258	70.1	187.9	267	69.3	197.7
	4	285	95.3	189.7	295	95.1	199.9	267	110	157
	5	288	94.1	193.9	280	112	168	270	97	173
	6	279	108	171	285	99.3	185.7	258	101	157
	7	264	74.2	189.8	267	70.6	196.4	247	65.3	181.7
	8	270	61.8	208.2	260	56.8	203.2	242	72.1	169.9
	9	259	70.1	188.9	261	62.4	198.6	269	59.4	209.6

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	297	275	22	318	253	65	263	252	11
	2	296	293	3	308	275	33	293	263	30
	3	297	281	16	284	260	24	260	269	-9
	4	293	268	25	286	244	42	279	259	20
	5	291	287	4	310	268	42	285	274	11
	6	282	261	21	309	276	33	270	262	8
	7	310	293	17	313	284	29	343	274	69
	8	318	272	46	343	289	54	301	254	47
	9	294	257	37	328	279	49	314	258	56
Teeth 2	1	280	243	37	262	256	6	284	268	16
	2	297	270	27	279	244	35	279	286	-7
	3	268	251	17	272	261	11	304	265	39
	4	243	186	57	247	173	74	243	200	43
	5	245	161	84	243	199	44	251	190	61
	6	258	164	94	246	212	34	264	191	73
	7	274	265	9	262	256	6	261	254	7
	8	265	273	-8	258	268	-10	245	246	-1
	9	221	265	-44	227	271	-44	220	249	-29

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 3	1	286	244	42	301	237	64	303	215	88
	2	261	258	3	277	214	63	262	230	32
	3	259	264	-5	284	230	54	279	241	38
	4	256	253	3	245	260	-15	249	259	-10
	5	264	266	-2	236	273	-37	269	276	-7
	6	270	249	21	240	251	-11	273	262	11
	7	243	273	-30	269	263	6	301	246	55
	8	258	268	-10	292	248	44	282	231	51
	9	277	270	7	287	250	37	265	256	9
Teeth 4	1	235	237	-2	242	220	22	239	249	-10
	2	213	245	-32	232	230	2	274	239	35
	3	230	239	-9	279	236	43	259	233	26
	4	268	260	8	300	264	36	306	255	51
	5	289	223	66	277	241	36	262	245	17
	6	270	242	28	258	238	20	253	231	22
	7	305	228	77	260	237	23	300	247	53
	8	281	231	50	281	259	22	277	260	17
	9	242	248	-6	265	240	25	258	236	22

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 5	1	309	209	100	286	241	45	281	237	44
	2	279	214	65	300	230	70	276	220	56
	3	284	240	44	271	237	34	311	225	86
	4	284	205	79	275	218	57	291	190	101
	5	268	210	58	285	225	60	266	212	54
	6	270	201	69	265	193	72	287	187	100
	7	272	222	50	282	193	89	291	224	67
	8	257	200	57	279	186	93	263	199	64
	9	279	216	63	259	210	49	274	198	76
Teeth 6	1	279	238	41	294	259	35	287	243	44
	2	298	232	66	278	246	32	279	239	40
	3	278	226	52	289	250	39	296	249	47
	4	276	217	59	277	207	70	279	195	84
	5	284	201	83	290	221	69	280	194	86
	6	274	223	51	286	219	67	271	199	72
	7	284	201	83	283	193	90	276	193	83
	8	280	207	73	276	161	115	289	190	99
	9	278	199	79	290	190	100	298	193	105

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 7	1	207	199	8	202	216	-14	222	200	22
	2	212	201	11	192	179	13	198	198	0
	3	198	187	11	189	184	5	201	181	20
	4	186	201	-15	199	200	-1	185	202	-17
	5	195	189	6	200	179	21	198	187	11
	6	185	177	8	188	185	3	199	188	11
	7	218	210	8	214	201	13	201	204	-3
	8	197	200	-3	208	189	19	203	197	6
	9	206	184	22	192	214	-22	188	188	0
Teeth 8	1	287	268	19	292	245	47	303	233	70
	2	296	238	58	289	260	29	298	245	53
	3	289	252	37	287	248	39	290	267	23
	4	306	270	36	290	284	6	280	272	8
	5	291	283	8	300	289	11	298	285	13
	6	289	295	-6	287	276	11	293	283	10
	7	303	297	6	318	290	28	308	264	44
	8	310	280	30	326	276	50	316	293	23
	9	298	281	17	299	293	6	293	287	6

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 9	1	285	233	52	291	246	45	282	263	19
	2	289	270	19	285	238	47	290	258	32
	3	292	240	52	298	261	37	287	242	45
	4	267	263	4	267	256	11	285	270	15
	5	277	243	34	275	260	15	276	243	33
	6	271	238	33	270	235	35	268	237	31
	7	264	271	-7	279	267	12	275	254	21
	8	272	248	24	270	250	20	270	261	9
	9	269	239	30	274	259	15	262	268	-6
Teeth 10	1	267	262	5	247	272	-25	264	267	-3
	2	243	250	-7	261	262	-1	269	248	21
	3	270	259	11	251	246	5	280	265	15
	4	260	260	0	283	262	21	279	262	17
	5	258	271	-13	289	268	21	261	249	12
	6	289	259	30	274	258	16	269	276	-7
	7	269	258	11	270	244	26	270	243	27
	8	260	240	20	275	248	27	254	249	5
	9	281	253	28	279	257	22	278	260	18

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 11	1	106	95.5	10.5	100	94	6	117	103	14
	2	105	90	15	103	101	2	110	99.8	10.2
	3	110	98.7	11.3	108	90.5	17.5	113	104	9
	4	115	96	19	101	96.6	4.4	109	103	6
	5	109	99.8	9.2	111	99.8	11.2	113	100	13
	6	117	101	16	113	89.3	23.7	120	105	15
	7	120	103	17	111	112	-1	128	109	19
	8	103	107	-4	120	99.8	20.2	110	101	9
	9	119	100	19	109	103	6	115	107	8
Teeth 12	1	330	300	30	333	295	38	337	302	35
	2	324	285	39	318	283	35	330	290	40
	3	333	280	53	320	289	31	318	287	31
	4	286	280	6	290	279	11	285	282	3
	5	298	276	22	300	268	32	289	289	0
	6	293	271	22	287	271	16	290	281	9
	7	291	275	16	280	259	21	293	263	30
	8	289	281	8	288	261	27	290	269	21
	9	300	269	31	287	264	23	310	271	39

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth13	1	280	243	37	262	256	6	284	268	16
	2	297	270	27	279	255	24	279	286	-7
	3	268	251	17	279	261	18	300	265	35
	4	243	186	57	247	173	74	243	200	43
	5	245	161	84	243	199	44	251	190	61
	6	258	164	94	246	202	44	264	191	73
	7	274	265	9	262	246	16	261	254	7
	8	265	270	-5	258	248	10	245	246	-1
	9	249	260	-11	287	270	17	240	244	-4
Teeth 14	1	309	209	100	286	241	45	281	237	44
	2	279	214	65	300	230	70	276	220	56
	3	284	240	44	271	237	34	311	225	86
	4	284	205	79	275	218	57	291	190	101
	5	268	210	58	285	225	60	266	212	54
	6	270	201	69	265	193	72	287	187	100
	7	272	222	50	282	193	89	291	224	67
	8	257	200	57	279	186	93	263	199	64
	9	279	216	63	259	210	49	274	198	76

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 15	1	279	238	41	294	259	35	287	243	44
	2	298	232	66	278	246	32	279	239	40
	3	278	226	52	289	250	39	296	249	47
	4	276	217	59	277	207	70	279	195	84
	5	284	201	83	290	221	69	280	194	86
	6	274	223	51	286	219	67	271	199	72
	7	284	201	83	290	193	97	276	193	83
	8	280	207	73	276	161	115	289	190	99
	9	278	199	79	283	190	93	298	193	105
Teeth 16	1	225	194	31	200	194	6	227	168	59
	2	221	192	29	227	172	55	219	199	20
	3	210	179	31	221	183	38	216	179	37
	4	231	210	21	214	179	35	224	150	74
	5	217	220	-3	205	184	21	197	178	19
	6	245	195	50	244	220	24	214	225	-11
	7	238	206	32	223	219	4	214	218	-4
	8	231	194	37	215	201	14	217	215	2
	9	200	174	26	231	172	59	237	181	56

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 17	1	285	233	52	291	246	45	282	193	89
	2	289	270	19	285	238	47	290	208	82
	3	292	240	52	298	261	37	287	232	55
	4	267	263	4	267	256	11	285	200	85
	5	277	243	34	275	260	15	276	183	93
	6	271	238	33	270	235	35	268	237	31
	7	264	231	33	279	267	12	275	194	81
	8	272	248	24	270	250	20	270	201	69
	9	269	239	30	274	259	15	262	188	74

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	260	139	121	279	137	142	260	127	133
	2	226	143	83	241	147	94	257	125	132
	3	258	149	109	234	141	93	247	135	112
	4	245	143	102	279	127	152	259	133	126
	5	252	146	106	262	137	125	244	122	122
	6	274	138	136	252	123	129	241	126	115
	7	282	138	144	238	135	103	271	122	149
	8	252	147	105	247	117	130	254	131	123
	9	238	164	74	248	136	112	276	127	149
Teeth 2	1	259	205	54	263	167	96	202	130	72
	2	248	188	60	236	179	57	230	137	93
	3	242	195	47	253	167	86	243	142	101
	4	267	256	11	252	252	0	243	141	102
	5	268	264	4	258	232	26	238	124	114
	6	272	239	33	251	254	-3	239	136	103
	7	269	244	25	260	197	63	260	142	118
	8	268	217	51	270	143	127	287	199	88
	9	263	213	50	275	125	150	274	168	106

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 3	1	259	231	28	301	229	72	294	231	63
	2	264	239	25	298	233	65	262	209	53
	3	304	220	84	284	204	80	272	180	92
	4	251	220	31	294	179	115	256	210	46
	5	244	193	51	246	180	66	289	190	99
	6	267	180	87	258	165	93	242	196	46
	7	310	212	98	305	206	99	275	199	76
	8	266	231	35	263	233	30	265	230	35
	9	285	201	84	280	189	91	239	190	49
Teeth 4	1	251	145	106	280	154	126	291	189	102
	2	260	159	101	259	171	88	279	171	108
	3	253	150	103	263	162	101	241	163	78
	4	247	192	55	243	220	23	300	190	110
	5	248	176	72	253	198	55	249	175	74
	6	260	167	93	265	178	87	223	169	54
	7	287	200	87	266	183	83	301	180	121
	8	260	181	79	291	176	115	254	163	91
	9	259	179	80	255	162	93	237	172	65

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 5	1	281	192	89	300	187	113	299	181	118
	2	275	182	93	301	172	129	287	179	108
	3	293	191	102	270	179	91	265	171	94
	4	276	162	114	240	167	73	280	171	109
	5	258	169	89	271	179	92	287	178	109
	6	224	173	51	280	171	109	271	170	101
	7	253	187	66	274	197	77	267	189	78
	8	276	197	79	280	183	97	248	187	61
	9	281	189	92	269	190	79	270	187	83
Teeth 6	1	287	195	92	292	197	95	293	199	94
	2	297	183	114	301	190	111	295	181	114
	3	279	181	98	289	181	108	300	184	116
	4	208	207	61	285	210	75	281	188	93
	5	280	187	93	291	191	100	286	198	88
	6	279	194	85	284	184	100	296	176	120
	7	294	189	105	281	199	82	270	178	92
	8	290	174	116	291	176	115	280	184	96
	9	276	198	78	285	179	106	289	179	110

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 7	1	247	268	-21	277	262	15	276	272	4
	2	267	246	21	263	236	27	255	235	20
	3	236	238	-2	256	240	16	261	230	31
	4	299	289	10	300	285	15	294	266	28
	5	283	294	-11	304	285	19	284	287	-3
	6	295	281	14	292	287	5	287	260	27
	7	205	188	17	236	174	62	208	177	31
	8	234	170	64	218	180	38	238	172	66
	9	216	168	48	209	171	38	236	150	86
Teeth 8	1	241	242	-1	234	212	22	222	206	16
	2	242	233	9	248	204	44	239	209	30
	3	246	230	16	246	224	22	240	219	21
	4	206	214	-8	218	178	40	214	133	81
	5	210	207	3	214	168	46	224	134	90
	6	219	213	6	210	189	21	208	148	60
	7	260	258	2	250	246	4	266	240	26
	8	258	253	5	264	240	24	258	250	8
	9	259	248	11	255	251	4	262	260	2

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 9	1	166	180	-14	179	130	49	181	128	53
	2	172	163	9	171	151	20	174	129	45
	3	175	141	34	177	135	42	179	130	49
	4	224	142	82	213	119	94	203	123	80
	5	209	152	57	209	139	70	214	110	104
	6	214	181	33	215	130	85	219	134	85
	7	183	135	48	181	140	41	181	115	66
	8	179	168	11	177	126	51	169	122	47
	9	184	124	60	185	117	68	180	119	61
Teeth 10	1	141	124	17	152	96.1	55.9	154	89.8	64.2
	2	146	121	25	148	104	44	144	95.3	48.7
	3	153	123	30	142	111	31	151	99.1	51.9
	4	181	140	41	183	104	79	146	98.7	47.3
	5	186	143	43	150	129	21	140	93.6	46.4
	6	145	132	13	141	122	19	168	97.9	70.1
	7	114	125	-11	116	99.1	16.9	119	99.8	19.2
	8	109	127	-18	122	97.3	24.7	117	98.3	18.7
	9	120	104	16	109	101	8	113	99.7	13.3

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 11	1	131	121	10	136	113	23	130	110	20
	2	129	109	20	128	109	19	136	100	36
	3	135	110	25	129	107	22	127	114	13
	4	132	142	-10	133	120	13	135	124	11
	5	140	125	15	135	124	11	130	127	3
	6	129	129	0	141	118	23	129	112	17
	7	117	107	10	121	106	15	131	101	30
	8	125	120	5	126	111	15	135	108	27
	9	129	118	11	130	101	29	120	102	18
Teeth 12	1	340	289	51	346	268	78	319	263	56
	2	330	271	59	331	265	66	308	258	50
	3	327	260	67	336	263	73	321	268	53
	4	297	285	12	319	265	54	307	300	7
	5	300	281	19	305	277	28	308	291	17
	6	309	279	30	309	271	38	310	283	27
	7	320	305	15	329	300	29	334	298	36
	8	315	290	25	307	293	14	308	288	20
	9	306	288	18	311	288	23	325	286	39

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 13	1	259	205	54	263	167	96	232	130	102
	2	248	188	60	236	179	57	230	137	93
	3	242	195	47	253	167	86	243	142	101
	4	267	256	11	252	192	60	243	141	102
	5	268	264	4	258	132	126	238	124	114
	6	272	239	33	251	154	97	239	136	103
	7	269	244	25	260	197	63	260	182	78
	8	268	217	51	270	140	130	287	199	88
	9	263	213	50	275	185	90	274	179	95
Teeth 14	1	281	192	89	300	187	113	299	181	118
	2	275	182	93	301	172	129	287	179	108
	3	293	191	102	270	179	91	265	171	94
	4	276	162	114	240	167	73	280	171	109
	5	258	169	89	271	179	92	287	178	109
	6	224	173	51	280	171	109	271	170	101
	7	253	187	66	274	197	77	267	189	78
	8	276	197	79	280	183	97	248	187	61
	9	281	189	92	269	190	79	270	187	83

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 15	1	289	195	94	292	197	95	293	199	94
	2	297	183	114	301	190	111	295	181	114
	3	279	181	98	289	181	108	300	184	116
	4	268	207	61	285	210	75	281	188	93
	5	280	187	93	291	191	100	286	198	88
	6	279	194	85	284	184	100	296	176	120
	7	294	189	105	281	199	82	270	178	92
	8	290	174	116	291	176	115	280	184	96
	9	276	198	78	285	179	106	289	179	110
Teeth 16	1	238	181	57	230	152	78	220	156	64
	2	227	183	44	222	160	62	228	159	69
	3	255	167	88	236	141	95	239	145	94
	4	283	195	88	279	178	101	243	155	88
	5	297	175	122	262	178	84	267	172	95
	6	280	191	89	258	190	68	270	183	87
	7	274	157	117	270	139	131	287	162	125
	8	305	163	142	275	165	110	300	148	152
	9	275	153	122	262	139	123	242	154	88

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 17	1	247	146	101	277	135	142	276	132	144
	2	267	149	118	263	139	124	255	125	130
	3	236	138	98	256	140	116	261	130	131
	4	299	189	110	300	185	115	294	166	128
	5	283	194	89	304	168	136	284	187	97
	6	295	181	114	292	158	134	287	160	127
	7	288	188	100	236	174	62	208	177	31
	8	234	130	104	218	180	38	238	172	66
	9	216	128	88	209	171	38	236	150	86

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	261	196	65	295	207	88	254	157	97
	2	281	200	81	250	180	70	318	180	138
	3	295	193	102	283	201	82	300	182	118
	4	255	191	64	256	175	81	243	150	93
	5	282	210	72	243	169	74	241	162	79
	6	291	214	77	238	171	67	252	177	75
	7	319	185	134	257	181	76	292	158	134
	8	301	199	102	365	169	196	330	141	189
	9	280	205	75	313	155	158	327	151	176
Teeth 2	1	219	116	103	218	115	103	214	102	112
	2	203	120	83	207	103	104	198	118	80
	3	207	109	98	199	117	82	201	95.1	105.9
	4	264	140	124	269	122	147	270	93.4	176.6
	5	269	138	131	247	126	121	256	97.5	158.5
	6	268	149	119	249	103	146	280	98.4	181.6
	7	242	116	126	237	107	130	252	93	159
	8	255	128	127	244	98.2	145.8	270	89.6	180.4
	9	237	130	107	242	96.4	145.6	253	97.3	155.7

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 3	1	269	152	117	259	146	113	253	149	104
	2	248	162	86	271	110	161	269	111	158
	3	281	148	133	291	132	159	280	107	173
	4	303	114	189	289	108	181	308	120	188
	5	272	116	156	299	132	167	271	128	143
	6	289	121	168	268	120	148	278	131	147
	7	269	105	164	281	106	175	253	119	134
	8	276	102	174	252	110	142	270	111	159
	9	283	109	174	239	105	134	248	107	141
Teeth 4	1	235	138	97	242	110	132	239	107	132
	2	223	118	105	222	116	106	224	110	114
	3	220	130	90	219	120	99	229	118	111
	4	235	135	100	247	142	105	262	136	126
	5	258	174	84	260	160	100	245	160	85
	6	248	143	105	231	144	87	235	137	98
	7	240	111	129	277	153	124	265	176	89
	8	238	142	96	264	150	114	250	148	102
	9	234	126	108	250	138	112	238	182	56

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 5	1	299	109	190	270	89.6	180.4	272	90.9	181.1
	2	285	109	176	248	92.4	155.6	251	87	164
	3	271	102	169	283	93	190	287	91.3	195.7
	4	311	159	152	291	148	143	266	141	125
	5	308	164	144	301	139	162	275	133	142
	6	300	153	147	284	138	146	289	139	150
	7	304	126	178	281	113	168	285	112	173
	8	289	126	163	284	114	170	276	112	164
	9	270	124	146	301	113	188	299	110	189
Teeth 6	1	311	153	158	319	144	175	289	127	162
	2	305	166	139	301	140	161	310	135	175
	3	287	149	138	299	133	166	298	128	170
	4	293	133	160	314	122	192	318	120	198
	5	309	135	174	300	122	178	297	122	175
	6	305	130	175	289	124	165	301	126	175
	7	310	134	176	293	118	175	292	121	171
	8	298	127	171	291	119	172	287	114	173
	9	289	128	161	305	116	189	308	117	191

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 7	1	171	167	4	181	154	27	173	171	2
	2	169	150	19	170	162	8	179	150	29
	3	179	164	15	165	160	5	181	146	35
	4	146	134	12	143	119	24	133	116	17
	5	140	124	16	140	125	15	134	118	16
	6	141	113	28	139	106	33	140	117	23
	7	174	153	21	183	149	34	169	134	35
	8	157	167	-10	185	152	33	176	134	42
	9	179	144	35	179	136	43	185	135	50
Teeth 8	1	298	274	24	292	250	42	289	267	22
	2	280	283	-3	300	270	30	290	258	32
	3	291	268	23	289	265	24	299	271	28
	4	294	297	-3	280	284	-4	267	240	27
	5	300	287	13	291	270	21	286	279	7
	6	285	290	-5	279	259	20	281	250	31
	7	304	279	25	309	222	87	315	198	117
	8	300	260	40	299	234	65	300	234	66
	9	310	250	60	301	237	64	298	226	72

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 9	1	178	165	13	177	143	34	179	159	20
	2	183	137	46	189	151	38	181	155	26
	3	180	135	45	180	120	60	180	126	54
	4	149	133	16	145	113	32	149	130	19
	5	140	126	14	149	129	20	159	123	36
	6	158	138	20	155	125	30	153	117	36
	7	167	117	50	167	114	53	183	124	59
	8	172	128	44	169	124	45	169	107	62
	9	168	110	58	175	107	68	178	109	69
Teeth 10	1	189	132	57	173	124	49	159	120	39
	2	170	126	44	181	119	62	185	109	76
	3	199	140	59	179	134	45	176	130	46
	4	231	95.8	135.2	189	99.1	89.9	177	105	72
	5	210	99.9	110.1	200	105	95	188	90.7	97.3
	6	206	109	97	190	95.7	94.3	190	94.8	95.2
	7	230	96.9	133.1	144	94.9	49.1	155	87.6	67.4
	8	224	84.6	139.4	160	81.8	78.2	170	85	85
	9	202	99.7	102.3	171	98.1	72.9	163	89	74

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 11	1	226	229	-3	242	207	35	238	207	31
	2	230	231	-1	238	210	28	246	209	37
	3	240	219	21	253	204	49	235	210	25
	4	258	246	12	236	236	0	242	227	15
	5	254	239	15	249	214	35	248	231	17
	6	266	223	43	254	208	46	253	208	45
	7	253	217	36	246	214	32	255	203	52
	8	240	231	9	249	234	15	259	217	42
	9	250	226	24	260	219	41			
Teeth 12	1	326	131	195	304	125	179	328	135	193
	2	309	127	182	306	124	182	318	138	180
	3	315	139	176	309	118	191	315	143	172
	4	295	197	98	303	188	115	316	181	135
	5	303	188	115	310	178	132	317	175	142
	6	301	191	110	309	183	126	320	183	137
	7	298	122	176	297	115	182	307	109	198
	8	309	130	179	305	123	182	309	115	194
	9	303	129	174	310	130	180	311	118	193

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 13	1	219	116	103	218	115	103	214	102	112
	2	203	120	83	207	120	87	202	118	84
	3	207	109	98	209	107	102	201	95.1	105.9
	4	264	140	124	269	122	147	270	93.4	176.6
	5	269	138	131	247	126	121	256	97.5	158.5
	6	268	149	119	249	103	146	280	98.4	181.6
	7	242	116	126	237	107	130	252	93	159
	8	255	128	127	244	98.2	145.8	270	89.6	180.4
	9	237	130	107	242	96.4	145.6	253	97.3	155.7
Teeth 14	1	299	109	190	270	89.6	180.4	272	90.9	181.1
	2	285	109	176	248	92.4	155.6	251	87	164
	3	271	102	169	283	93	190	287	90.3	196.7
	4	311	159	152	291	148	143	266	141	125
	5	308	164	144	301	139	162	275	133	142
	6	300	153	147	284	138	146	289	139	150
	7	304	126	178	281	113	168	285	112	173
	8	289	126	163	284	114	170	276	112	164
	9	270	124	146	301	113	188	299	110	189

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 15	1	311	153	158	319	140	179	289	127	162
	2	305	166	139	301	140	161	310	135	175
	3	287	149	138	299	133	166	298	128	170
	4	293	133	160	314	122	192	318	120	198
	5	309	135	174	300	122	178	297	124	173
	6	305	130	175	289	124	165	301	126	175
	7	310	134	176	293	118	175	292	121	171
	8	298	127	171	291	119	172	287	114	173
	9	289	128	161	305	116	189	308	117	191
Teeth 16	1	263	148	115	270	154	116	256	135	121
	2	252	145	107	270	136	134	268	132	136
	3	264	150	114	274	132	142	274	160	114
	4	291	181	110	292	150	142	287	149	138
	5	275	148	127	277	164	113	299	159	140
	6	274	151	123	305	170	135	282	134	148
	7	260	137	123	272	118	154	268	158	110
	8	270	123	147	290	123	167	283	129	154
	9	282	142	140	298	140	158	274	135	139

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 17	1	226	179	47	242	134	108	238	107	131
	2	230	170	60	238	121	117	246	109	137
	3	240	182	58	256	112	144	235	110	125
	4	258	168	90	236	136	100	242	127	115
	5	254	187	67	249	114	135	248	102	146
	6	266	185	81	254	108	146	253	108	145
	7	253	168	85	246	114	132	255	103	152
	8	240	157	83	249	134	115	259	117	142
	9	250	158	92	260	119	141	241	115	126

One way ANOVA compared the mean delta of enamel changes after soaking in the demineralization solution 24 hours among the four groups studied

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5606022.637	3	1868674.212	860.622	.000
Within Groups	3975660.635	1831	2171.306		
Total	9581683.272	1834			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
	(I) Type of filling	(J) Type of filling			
Bonferroni	negative	positive	148.4497	3.0759	.000
		RMGC	112.6608	3.0759	.000
		PMRC	70.289	3.0776	.000
	positive	negative	-148.4497	3.0759	.000
		RMGC	-35.7889	3.0759	.000
		PMRC	-78.1607	3.0776	.000
	RMGC	negative	-112.6608	3.0759	.000
		positive	35.7889	3.0759	.000
		PMRC	-42.3718	3.0776	.000
	F2000	negative	-70.289	3.0776	.000
		positive	78.1607	3.0776	.000
		RMGC	42.3718	3.0776	.000

The mean difference is significant at the .05 level.

Descriptive of the negative group as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	153	183.2902	53.9639	4.3627	24	254.8
200 microns	153	183.6242	53.4599	4.322	34	258.8
300 microns	153	179.181	55.8867	4.5182	25.9	262
Total	459	182.0318	54.3655	2.5376	24	262

ANOVA compared the three locations of the negative group

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1873.645	2	936.822	.316	.729
Within Groups	1351793.231	456	2964.459		
Total	1353666.876	458			

Descriptive of the positive group as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	153	31.2941	29.2216	2.3624	-44.00	100.00
200 microns	153	32.7843	28.4521	2.3002	-44.00	115.00
200 microns	153	32.7843	28.4521	2.3002	-44.00	115.00
300 microns	153	36.6680	32.2563	2.6078	-29.00	105.00
300 microns	153	36.6680	32.2563	2.6078	-29.00	105.00
Total	459	33.5821	30.0417	1.4022	-44.00	115.00

					.00	

ANOVA compared the three locations of the positive group

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2355.273	2	1177.637	1.307	0.272
Within Groups	410992.38	456	901.299		
Total	413347.654	458			

Descriptive of resin modified glass ionomer cement as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	153	58.9346	40.9537	3.3109	-21.00	144.00
200 microns	153	72.4477	39.4377	3.1884	-3.00	152.00
300 microns	153	76.7307	37.7186	3.0494	-3.00	152.00
Total	459	69.3710	40.0326	1.8686	-21.00	152.00

ANOVA compared the three locations of resin modified glass ionomer cement as a function of distance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26400.031	2	13200.015	8.507	.000
Within Groups	707595.314	456	1551.744		
Total	733995.345	458			

Multiple Comparisons of resin modified glass ionomer cement

			Mean Difference (I-J)	Std. Error	Sig.
	(I) level from filling	(J) level from filling			
Bonferroni	100 microns	200microns	-13.5131	4.5038	.009
		300microns	-17.7961	4.5038	.000
	200 microns	100microns	13.5131	4.5038	.009
		300microns	-4.2830	4.5038	1.000
	300 microns	100microns	17.7961	4.5038	.000
		200microns	4.2830	4.5038	1.000

The mean difference is significant at the .05 level.

Descriptive of polyacid modified resin composite as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	153	102.9026	56.7572	4.5885	-10	195
200 microns	153	113.6876	56.0133	4.5284	-4	196
300 microns	152	118.6836	56.8631	4.6122	2	198
Total	458	111.7428	56.805	2.6543	-10	198

ANOVA compared the three locations of polyacid modified resin composite

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19857.907	2	9928.953	3.105	.046
Within Groups	1454792.854	455	3197.347		
Total	1474650.761	457			

Multiple Comparisons of polyacid modified resin composite as function of distance

			Mean Difference (I-J)	Std. Error	Sig.
	(I) level from filling	(J) level from filling			
Bonferroni	100 microns	200 microns	-10.785	6.4649	0.288
		300 microns	-15.7809	6.4756	0.046
	200 microns	100 microns	10.785	6.4649	0.288
		300 microns	-4.996	6.4756	1
	300micron	100 microns	15.7809	6.4756	0.046
		200 microns	4.996	6.4756	1

The mean difference is significant at the .05 level

APPENDIX 4.4

The microhardness test of dentin surface adjacent to different restorative materials after soaking in the demineralization solution for 24 hours

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	47.3	19.4	27.9	48.5	18.3	30.2	51.6	18	33.6
	2	53.1	18.1	35	44.2	19	25.2	53.1	19.3	33.8
	3	45.4	17.2	28.2	54.1	18.8	35.3	56.8	17	39.8
	4	42.3	15	27.3	43.8	15.5	28.3	37.2	14.6	22.6
	5	47.8	13.3	34.5	41.1	16.9	24.2	38.1	15.5	22.6
	6	51.1	19	32.1	50.1	14.8	35.3	39.2	15.7	23.5
	7	50.6	14.8	35.8	46.8	16.4	30.4	45.5	16	29.5
	8	47	16.5	30.5	46.1	17.4	28.7	43.7	14.7	29
	9	47.8	16.7	31.1	51.1	15.9	35.2	46.8	15.2	31.6
Teeth 2	1	47.2	14.7	32.5	49.7	16	33.7	44	15.2	28.8
	2	45.7	15.3	30.4	43.6	14.4	29.2	54.1	17.4	36.7
	3	55.4	14.4	41	58.2	14.5	43.7	53.2	13.8	39.4
	4	44.6	15.3	29.3	42.6	12	30.6	43.2	12.1	31.1
	5	46.5	13.9	32.6	44.5	13.1	31.4	40.7	12.2	28.5
	6	45.6	12.5	33.1	43.5	11.2	32.3	44.4	12.3	32.1
	7	64.4	13.1	51.3	60.8	13	47.8	61.9	15.5	46.4
	8	56.4	11.2	45.2	59.7	14	45.7	56.5	13.8	42.7
	9	51.4	12.3	39.1	49.2	14.1	35.1	48.7	14.6	34.1

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 3	1	27.7	11.2	16.5	28.4	11.2	17.2	30.5	9.93	20.57
	2	30.4	10.9	19.5	30.4	11	19.4	39.1	10.1	29
	3	29.6	10.6	19	28.9	11.3	17.6	38.8	10	28.8
	4	46.7	11.5	35.2	42.9	12.1	30.8	47.7	11.4	36.3
	5	45	11.7	33.3	47.4	11.8	35.6	43.6	11.3	32.3
	6	42.6	11.3	31.3	43.8	12	31.8	44.4	11.1	33.3
	7	41.5	10.9	30.6	45.5	11.1	34.4	42.8	10.7	32.1
	8	44.1	10.7	33.4	40.8	11.4	29.4	40.6	11.5	29.1
	9	42.3	10.5	31.8	42.4	10.9	31.5	43.6	10.6	33
Teeth 4	1	43.2	16.3	26.9	46.2	16	30.2	41.4	15	26.4
	2	46.6	16.7	29.9	40.6	15.8	24.8	43.8	16	27.8
	3	40.3	15.4	24.9	42.3	14.9	27.4	40.4	15	25.4
	4	46	15.8	30.2	36.8	16.7	20.1	32.9	15	17.9
	5	31.7	15	16.7	32.4	15.8	16.6	31.2	16.1	15.1
	6	38.6	15.9	22.7	33.2	14.8	18.4	36.1	14.7	21.4
	7	41.5	15.7	25.8	40.1	16.2	23.9	35.5	15.8	19.7
	8	39.7	18	21.7	40.2	17.1	23.1	40.9	15.3	25.6
	9	36.2	17.1	19.1	37.7	16	21.7	38.7	14.9	23.8

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 5	1	46.4	16.3	30.1	45.2	16.1	29.1	46.6	14.1	32.5
	2	47	15.1	31.9	47.2	14.8	32.4	45	15.8	29.2
	3	46.8	15.8	31	46.8	15.3	31.5	47	15.6	31.4
	4	47	14.3	32.7	47.1	16.9	30.2	47.3	18.3	29
	5	47.5	15.4	32.1	48	15.9	32.1	47.1	18.1	29
	6	46.9	15.8	31.1	47.8	14.9	32.9	47.5	16	31.5
	7	47.7	15.7	32	48	17.1	30.9	47.8	16.5	31.3
	8	47	15.8	31.2	46.8	15.9	30.9	47	17.2	29.8
	9	47.1	16.3	30.8	47.5	16.6	30.9	47.3	16	31.3
Teeth 6	1	48.5	18.9	29.6	51.6	19.2	32.4	52.3	21.1	31.2
	2	50	20.1	29.9	50.3	19.3	31	51.6	19.2	32.4
	3	49.8	19.8	30	49.8	19.9	29.9	52	20.4	31.6
	4	44.6	19.8	24.8	45.6	21.3	24.3	44.4	21.4	23
	5	46.3	20.6	25.7	46	20.3	25.7	45	21.6	23.4
	6	45.6	20.1	25.5	47.1	20.5	26.6	46.8	20.1	26.7
	7	48.3	20.5	27.8	52.1	22.4	29.7	50.8	19.8	31
	8	50.9	20.8	30.1	51.4	22.1	29.3	50.4	21.4	29
	9	51	19.2	31.8	50.1	21.4	28.7	49.8	20.5	29.3

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 7	1	32.1	12.7	19.4	32.2	13.3	18.9	31.9	13.1	18.8
	2	32.3	12.5	19.8	32.6	13	19.6	32.6	12.6	20
	3	31.9	13.5	18.4	30.5	12.4	18.1	33.1	13.3	19.8
	4	30.9	15.5	15.4	34.3	16.5	17.8	35.6	17	18.6
	5	30.1	14.9	15.2	33.9	15.8	18.1	34.1	15.9	18.2
	6	32.8	15.3	17.5	32.3	15.4	16.9	34.7	16.4	18.3
	7	34.3	16.4	17.9	30.8	16	14.8	32.3	15.5	16.8
	8	32.1	15.1	17	32.1	15.4	16.7	30.8	15.6	15.2
	9	34.6	15.8	18.8	30.2	15.2	15	31.2	15.9	15.3
Teeth 8	1	30.5	15.5	15	32.6	17	15.6	31.5	17.1	14.4
	2	31.8	16.5	15.3	31.8	16	15.8	31.9	17.5	14.4
	3	32.4	15.9	16.5	33	15.8	17.2	32.5	15.8	16.7
	4	33.8	17.8	16	33.2	18.4	14.8	32.4	17.9	14.5
	5	33.1	17.6	15.5	32.8	16.8	16	33.1	17	16.1
	6	32.5	17.3	15.2	33.6	17.4	16.2	33.5	17.3	16.2
	7	34.2	18.8	15.4	37.2	19.1	18.1	37.4	19.3	18.1
	8	36	17.9	18.1	36	18.7	17.3	36.8	18.9	17.9
	9	35.8	17.8	18	37	19.3	17.7	36.5	19	17.5

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 9	1	44.4	17.1	27.3	43.8	18.7	25.1	42.7	17.8	24.9
	2	43.6	18.5	25.1	42.9	19.5	23.4	43.5	18.2	25.3
	3	43	17.6	25.4	43.6	17.4	26.2	42.9	17.3	25.6
	4	45.2	17.7	27.5	42.5	18.9	23.6	40.8	17.4	23.4
	5	42.8	16.7	26.1	42.9	17	25.9	41	18	23
	6	43.4	19.3	24.1	41.5	16.8	24.7	40.6	17.9	22.7
	7	40.4	17.7	22.7	40.9	20.8	20.1	40.8	16.9	23.9
	8	40.1	19.1	21	40.8	17.3	23.5	39.7	17.8	21.9
	9	39.3	18.3	21	40.8	19.3	21.5	40.1	19.7	20.4
Teeth 10	1	42.3	18	24.3	43.6	18.5	25.1	45.1	18.4	26.7
	2	43.4	18.1	25.3	43.8	18.1	25.7	44.9	18.3	26.6
	3	42.9	17.8	25.1	44.6	17.8	26.8	46	18.1	27.9
	4	42.6	17	25.6	43.5	18.1	25.4	46.5	18.5	28
	5	44.5	18.1	26.4	45	17.6	27.4	44.4	16.9	27.5
	6	43.8	17.9	25.9	44.2	18	26.2	43.9	17.3	26.6
	7	45	16.1	28.9	44.2	15.7	28.5	44.2	16.7	27.5
	8	44.2	16.3	27.9	44	17.3	26.7	44.4	16.5	27.9
	9	44.3	17.2	27.1	44.9	16.4	28.5	44	16.9	27.1

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 11	1	27.8	15.4	12.4	28.3	16.4	11.9	28.3	17.3	11
	2	28.8	16	12.8	27.6	15.1	12.5	28	15.3	12.7
	3	27.1	16.9	10.2	27.2	16.8	10.4	27.3	16.3	11
	4	29.6	16.4	13.2	27.7	16.1	11.6	27.8	15.6	12.2
	5	26.1	17	9.1	27	15.3	11.7	28.2	15.9	12.3
	6	28.4	15.7	12.7	27.8	16.8	11	27.9	16.7	11.2
	7	28.5	15.9	12.6	29.1	16.3	12.8	28.4	16.2	12.2
	8	29.1	16.1	13	27	15.7	11.3	27.9	15	12.9
	9	28	16.3	11.7	28.4	16.5	11.9	28.7	16.7	12
Teeth 12	1	37.4	16	21.4	37	14.9	22.1	38.1	15.4	22.7
	2	38	15.4	22.6	39	14.8	24.2	38.8	15	23.8
	3	37.6	14.9	22.7	38.1	15.2	22.9	38	15.1	22.9
	4	38.8	15.8	23	38.4	15.3	23.1	39	15	24
	5	38	14.9	23.1	38	15.3	22.7	39.1	14.8	24.3
	6	37.7	15.6	22.1	38.9	15.6	23.3	39.4	14.5	24.9
	7	44.1	15.9	28.2	44.5	16	28.5	44.9	14.9	30
	8	43.4	15	28.4	43.9	15.9	28	43.8	14.3	29.5
	9	43.8	15.3	28.5	44	15.3	28.7	44.8	14.6	30.2

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 13	1	47.2	14.7	32.5	49.7	16	33.7	54	15.2	38.8
	2	45.7	15.3	30.4	48.6	14.4	34.2	54.1	17.4	36.7
	3	45.4	14.4	31	50.2	14.5	35.7	53.2	13.8	39.4
	4	44.6	15.3	29.3	42.8	12	30.8	43.2	12.1	31.1
	5	45.5	13.9	31.6	44	13.1	30.9	42.7	12.2	30.5
	6	45.6	12.5	33.1	43.5	11.2	32.3	44.4	12.3	32.1
	7	60.4	13.1	47.3	60.8	13	47.8	60.9	15.5	45.4
	8	56.4	11.2	45.2	59.7	14	45.7	59.5	13.8	45.7
	9	55.4	12.3	43.1	59.8	14.1	45.7	58.7	14.6	44.1
Teeth 14	1	36.9	18.2	18.7	35.5	18.2	17.3	38.2	19.9	18.3
	2	35.9	18.1	17.8	32.6	18.8	13.8	34.7	17.6	17.1
	3	36	17.3	18.7	37.1	17.6	19.5	35.8	17.3	18.5
	4	35.7	17.7	18	33.5	18.5	15	33.5	21.3	12.2
	5	36	20.2	15.8	33.6	21	12.6	33.6	19.8	13.8
	6	34.8	18.3	16.5	33	17.5	15.5	34	17.2	16.8
	7	36.2	17	19.2	31.5	18.3	13.2	36.3	19.1	17.2
	8	34.8	17.8	17	33.1	17.5	15.6	33	17.6	15.4
	9	34.6	16.7	17.9	34.8	16.6	18.2	35.1	18.9	16.2

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 15	1	36.1	13.7	22.4	38.7	14.2	24.5	38.3	15.3	23
	2	38.2	13.3	24.9	37.7	14.1	23.6	38.4	14.5	23.9
	3	38.2	14.7	23.5	36.5	13.9	22.6	37.8	13.8	24
	4	36	14.7	21.3	36.4	15.1	21.3	36	15.2	20.8
	5	36.9	15.2	21.7	36.7	14.9	21.8	35	15.3	19.7
	6	37.6	14.4	23.2	37.4	15.3	22.1	36.6	14.8	21.8
	7	33.8	11.7	22.1	37	12.4	24.6	36.3	14	22.3
	8	35.3	11.3	24	37.1	13.2	23.9	37.6	12.5	25.1
	9	36.5	12	24.5	37.4	11.8	25.6	36.4	11.9	24.5
Teeth 16	1	38.8	10.5	28.3	48.3	14.8	33.5	53.6	18.4	35.2
	2	38.4	9.98	28.42	48	13.6	34.4	49.8	14.6	35.2
	3	39	10.2	28.8	49.1	10.4	38.7	48.6	10.8	37.8
	4	44.3	12.3	32	51.2	11.3	39.9	43	13.4	29.6
	5	44.5	11.2	33.3	54.5	12.4	42.1	44.1	10.5	33.6
	6	44.9	10.9	34	51	11.9	39.1	42.7	9.98	32.72
	7	37.4	12.3	25.1	50.1	11.3	38.8	39.8	10.6	29.2
	8	37	11.8	25.2	52	12	40	42.7	10.7	32
	9	38.1	10.7	27.4	50	13	37	42.9	9.87	33.03

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	47.6	22	25.6	43.9	21.2	22.7	48.9	20.5	28.4
	2	49.3	20.5	28.8	49.4	23.5	25.9	46.6	20.3	26.3
	3	43.2	23	20.2	51.6	22.5	29.1	43.1	20.3	22.8
	4	41.7	25.2	16.5	37.9	25.5	12.4	36.9	25.5	11.4
	5	44.2	27.6	16.6	40.2	25	15.2	41.5	22.5	19
	6	39.7	22.1	17.6	45.1	26.7	18.4	35.6	24.2	11.4
	7	40.5	21.3	19.2	53.8	26.3	27.5	51.9	24.4	27.5
	8	48.8	22.4	26.4	51.2	25.8	25.4	49.8	25.2	24.6
	9	59.9	24.8	35.1	44.1	25.9	18.2	46.8	26.5	20.3
Teeth 2	1	47.9	23.6	24.3	42.9	23.7	19.2	47.8	25.4	22.4
	2	46.3	24	22.3	44.9	24.3	20.6	46.5	26.1	20.4
	3	46.2	22.9	23.3	46.4	25	21.4	43.9	23.7	20.2
	4	56.7	23.7	33	54.3	23	31.3	51.7	25.6	26.1
	5	59.9	24.1	35.8	57.5	25.2	32.3	57.2	23.3	33.9
	6	62.2	22	40.2	60	23.5	36.5	55	25	30
	7	58.2	19.4	38.8	50.6	21.1	29.5	52.8	2.3	50.5
	8	61.3	21	40.3	59.7	21.7	38	51	23.3	27.7
	9	58.7	22	36.7	54.2	20.8	33.4	48.3	21.6	26.7

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 3	1	48.5	26.6	21.9	52.6	26.8	25.8	42.4	26.5	15.9
	2	48.8	27.3	21.5	48.4	26.1	22.3	45.2	27	18.2
	3	47.3	25.8	21.5	48.2	25.9	22.3	45.5	26.8	18.7
	4	46.4	26.6	19.8	53.3	28.1	25.2	54.2	27.5	26.7
	5	49.7	28	21.7	51.8	28.5	23.3	56	26.6	29.4
	6	50.8	27	23.8	53.8	28.1	25.7	60.2	26.7	33.5
	7	52.6	28.1	24.5	54	29.3	24.7	52.7	29.2	23.5
	8	48.4	28.5	19.9	54.5	28.2	26.3	56.1	28.6	27.5
	9	48.2	27.8	20.4	53.4	28.5	24.9	49.8	28.8	21
Teeth 4	1	50.5	25.5	25	53.3	27.1	26.2	50.1	28.1	22
	2	55.4	25.2	30.2	49.2	26.9	22.3	45.8	28.6	17.2
	3	47.6	25.3	22.3	48.1	27.3	20.8	48.8	28.3	20.5
	4	50	28.7	21.3	48.4	28	20.4	46.9	28.3	18.6
	5	44.5	27.6	16.9	40.3	27.7	12.6	48.1	28	20.1
	6	45.8	28	17.8	45.1	27.5	17.6	43.2	28.2	15
	7	55.8	29.2	26.6	58.2	30	28.2	52.3	29.8	22.5
	8	50.1	28.2	21.9	48.1	29.1	19	48.3	29.3	19
	9	48.3	28.1	20.2	45.6	28.4	17.2	50	28.8	21.2

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 5	1	49.1	39.7	9.4	52	36.6	15.4	48.4	35.4	13
	2	47.4	37.9	9.5	49.6	38.8	10.8	47.6	37.1	10.5
	3	48.4	28.6	19.8	49	37.3	11.7	49.1	36.5	12.6
	4	49.3	36.1	13.2	46.8	35.7	11.1	48.1	31.1	17
	5	48.9	38.2	10.7	47	35.5	11.5	47.1	34.6	12.5
	6	48.2	36.8	11.4	47.1	35	12.1	47.5	33.5	14
	7	48.2	33.1	15.1	44.1	32.6	11.5	42.5	30.1	12.4
	8	47.2	34.1	13.1	43.9	31.8	12.1	44.1	30.3	13.8
	9	47	33.8	13.2	45	32.3	12.7	43.6	30.6	13
Teeth 6	1	44.6	28.6	16	50	26.7	23.3	49.3	25.7	23.6
	2	47.6	26.9	20.7	49.8	27.6	22.2	48.7	27.1	21.6
	3	46.5	27.3	19.2	48.9	27.1	21.8	50.1	26.9	23.2
	4	44.6	26.2	18.4	52.6	27.5	25.1	54.5	26.9	27.6
	5	48.7	27.8	20.9	47.2	27	20.2	49.8	27	22.8
	6	52.3	26.9	25.4	51.9	27.8	24.1	52.1	27.3	24.8
	7	44	25.8	18.2	44.2	25.9	18.3	46	28	18
	8	44.5	26.3	18.2	45.5	26.8	18.7	44.3	26	18.3
	9	46.3	26.9	19.4	46.9	27.1	19.8	45.9	25.7	20.2

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 7	1	36.4	20.3	16.1	36.5	19.8	16.7	38.1	20.4	17.7
	2	36.9	18.7	18.2	36.8	20.5	16.3	36.3	19.4	16.9
	3	35	19.4	15.6	35.4	20.1	15.3	35.3	20.2	15.1
	4	34.7	17.5	17.2	34.8	17.8	17	35.7	17.6	18.1
	5	34.2	16.5	17.7	35.1	17.4	17.7	34.9	16.3	18.6
	6	35.6	17.3	18.3	35	16.9	18.1	34.6	16.9	17.7
	7	33.1	20.8	12.3	33.4	21	12.4	34.1	20.1	14
	8	34	21.2	12.8	34.5	20.9	13.6	34.2	20.7	13.5
	9	33.6	20	13.6	33.8	21.1	12.7	33.7	21.3	12.4
Teeth 8	1	35.3	19.1	16.2	36.5	20.3	16.2	37	19.2	17.8
	2	36.1	20.5	15.6	35	19.7	15.3	36.8	21.1	15.7
	3	35.8	20.8	15	34.8	20	14.8	36.4	20.3	16.1
	4	31.7	21.3	10.4	32	21.3	10.7	32.3	20.8	11.5
	5	32.3	20.9	11.4	31.8	21	10.8	31.8	21.9	9.9
	6	32.5	20.8	11.7	33	20.5	12.5	31.5	20.4	11.1
	7	36.6	18.8	17.8	35.5	19.2	16.3	35.1	19.9	15.2
	8	35.8	19.8	16	35.8	18.9	16.9	36	19	17
	9	35	19.3	15.7	34.9	19.3	15.6	35.2	18.7	16.5

Positive		VHN AT 100 µm			VHN AT 200 µm			VHN AT 300 µm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 9	1	36.3	20.8	15.5	37.8	18.6	19.2	37.7	19.6	18.1
	2	37.2	19.2	18	37	19.7	17.3	36.8	19.8	17
	3	36.9	19.2	17.7	36.8	19.9	16.9	37.2	20.4	16.8
	4	37.7	19.1	18.6	37.6	25.8	11.8	38.1	22.4	15.7
	5	37	22.5	14.5	38	23.4	14.6	37.6	19	18.6
	6	37.5	21.1	16.4	37.2	23	14.2	37.8	23.5	14.3
	7	36.5	17.9	18.6	37.9	19.9	18	36.5	20.7	15.8
	8	36.4	19.7	16.7	36.9	19.8	17.1	37	19.3	17.7
	9	36.9	19.3	17.6	37	20.8	16.2	36.8	19.9	16.9
Teeth 10	1	23.6	18.3	5.3	23.9	18.8	5.1	24.4	19.9	4.5
	2	24.9	19.4	5.5	24.6	18	6.6	25	18.2	6.8
	3	24	19.1	4.9	24.1	19.3	4.8	24.9	18.7	6.2
	4	26.7	19.1	7.6	25.9	19.1	6.8	26.3	19.4	6.9
	5	26.1	19.9	6.2	23.9	19.8	4.1	26	18.6	7.4
	6	25.5	17.8	7.7	24.8	18.7	6.1	25.7	18.9	6.8
	7	26	20.7	5.3	26.5	21.9	4.6	26	18.3	7.7
	8	24.9	20.5	4.4	25.8	19.1	6.7	26.3	20.1	6.2
	9	25.4	20.9	4.5	25.9	20.1	5.8	25.7	19.5	6.2

Positive		VHN AT 100 µm			VHN AT 200 µm			VHN AT 300 µm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 11	1	28.9	22	6.9	28.2	21.8	6.4	29.2	21.7	7.5
	2	28	21.1	6.9	28.4	21.2	7.2	28.4	21.5	6.9
	3	28.6	21.6	7	28.9	21.5	7.4	27.8	21.3	6.5
	4	26.1	21.4	4.7	26.9	21.5	5.4	27.1	21.8	5.3
	5	27	22.1	4.9	27.2	21.8	5.4	27.3	22.3	5
	6	26.8	21.7	5.1	25.8	21.3	4.5	26.7	21.4	5.3
	7	25.4	19.8	5.6	27.6	22.7	4.9	27.6	22.8	4.8
	8	26.9	22.9	4	26.4	21.5	4.9	26.8	20.6	6.2
	9	26.8	22.1	4.7	25.9	22.3	3.6	25.6	21.7	3.9
Teeth 12	1	31	18.8	12.2	31.8	19.9	11.9	30.9	20	10.9
	2	31.4	19.3	12.1	29.9	19.3	10.6	30.4	20.5	9.9
	3	31.2	18.9	12.3	30.3	20	10.3	31	20.4	10.6
	4	32.8	20.4	12.4	33.4	20.5	12.9	33.8	20.2	13.6
	5	32	20	12	33.2	20.3	12.9	32.4	20.1	12.3
	6	31.2	20.1	11.1	32.8	19.9	12.9	33.1	19.8	13.3
	7	27.3	19.8	7.5	28.5	20.3	8.2	28.7	20.8	7.9
	8	28	19.7	8.3	28	20	8	28	19.9	8.1
	9	37.1	19.4	17.7	28.7	20.5	8.2	28.5	19.1	9.4

Positive		VHN AT 100 µm			VHN AT 200 µm			VHN AT 300 µm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 13	1	47.9	19.4	28.5	42.9	21.1	21.8	47.8	20.3	27.5
	2	46.3	21	25.3	44.8	21.7	23.1	46.5	23.3	23.2
	3	46.2	22	24.2	44.9	20.8	24.1	43.9	21.6	22.3
	4	56.7	23.7	33	54.3	23	31.3	51.7	25.6	26.1
	5	59.9	24.1	35.8	57.5	25.2	32.3	57	23.3	33.7
	6	62.2	22	40.2	60	23.5	36.5	55	25	30
	7	58.2	23.6	34.6	50.6	23.7	26.9	52.8	25.4	27.4
	8	61.3	24	37.3	55.7	24.3	31.4	51	26.1	24.9
	9	58.7	22.9	35.8	54.2	25	29.2	48.3	23.7	24.6
Teeth 14	1	32.5	17.8	14.7	32.4	17.8	14.6	33.5	18.9	14.6
	2	31.6	18.6	13	33.7	18.2	15.5	32.6	17.2	15.4
	3	33.5	17.6	15.9	34.1	17.1	17	32	19	13
	4	32.5	24.9	7.6	31.2	25.8	5.4	32.4	26.3	6.1
	5	32.8	22.3	10.5	31.4	21.5	9.9	35.2	25.1	10.1
	6	32.1	23.5	8.6	32	22	10	33.1	22.8	10.3
	7	32.6	18.6	14	31.6	19.2	12.4	32.5	20.3	12.2
	8	33.4	19.2	14.2	30.3	18.2	12.1	22.6	19.8	2.8
	9	31.8	20.1	11.7	32.2	21.1	11.1	32.6	19.6	13

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 15	1	33.8	14.5	19.3	33.1	14.9	18.2	34.1	15.9	18.2
	2	33.7	14.1	19.6	33.5	13.9	19.6	34.6	15.4	19.2
	3	31.4	15.5	15.9	34	15	19	34.5	14.3	20.2
	4	30.3	16.9	13.4	33	16.8	16.2	32.7	15.4	17.3
	5	30.9	18.7	12.2	32.4	17.9	14.5	32	18.2	13.8
	6	38.8	17.7	21.1	31.1	19.6	11.5	32.6	17.8	14.8
	7	30.3	13.1	17.2	31.6	14.7	16.9	31.3	15.5	15.8
	8	31.2	14.6	16.6	32.4	13.2	19.2	31.1	14.3	16.8
	9	31.8	15.1	16.7	31.9	15.3	16.6	33	14.1	18.9
Teeth 16	1	49.4	17.5	31.9	46.7	16.7	30	49.3	18.4	30.9
	2	49.6	18.8	30.8	48.1	17.5	30.6	44.1	15.5	28.6
	3	47.6	17.6	30	47.6	11.9	35.7	44.9	13.9	31
	4	49.9	17.5	32.4	46.8	18.5	28.3	49.6	17.4	32.2
	5	52	13.6	38.4	48.9	17.8	31.1	47.4	16.2	31.2
	6	47.3	18.2	29.1	46.5	15.6	30.9	48.1	14.9	33.2
	7	50.3	18.1	32.2	46.6	17.9	28.7	49.2	15.2	34
	8	51.1	17.6	33.5	49	15.3	33.7	49	15.1	33.9
	9	52.6	18.1	34.5	43.1	14.6	28.5	44.5	14	30.5

RMGC		VHN AT 100 µm			VHN AT 200 µm			VHN AT 300 µm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	38.8	19.5	19.3	33.2	12.7	20.5	45	13	32
	2	43	19.1	23.9	40.2	16	24.2	32.7	12.2	20.5
	3	38.1	16.3	21.8	36	15.9	20.1	43.9	12.3	31.6
	4	32.1	18.9	13.2	39.3	15.1	24.2	35.6	11.4	24.2
	5	43.4	20.8	22.6	38.1	13	25.1	34.7	11.8	22.9
	6	34.3	19.9	14.4	35.2	14.2	21	33.3	10.8	22.5
	7	40.7	19.1	21.6	41.8	13.7	28.1	36.8	13.9	22.9
	8	38.8	20.7	18.1	43	13.8	29.2	41.6	15.8	25.8
	9	42.7	20.1	22.6	41.3	14.3	27	40	14.7	25.3
Teeth 2	1	62.5	19.1	43.4	67.7	16	51.7	55.7	16.2	39.5
	2	58.1	21	37.1	60.8	15	45.8	60.3	15.4	44.9
	3	67.9	21.7	46.2	62.4	15.1	47.3	61.7	14.3	47.4
	4	59.7	19.3	40.4	58.4	16.5	41.9	63.5	16.9	46.6
	5	63.9	19.2	44.7	62.2	17.4	44.8	59.7	17.6	42.1
	6	57.1	18.8	38.3	62.4	17.9	44.5	57.4	18.5	38.9
	7	47.9	17.6	30.3	52.6	18.3	34.3	50.3	17.4	32.9
	8	49.2	18.6	30.6	53.2	17.1	36.1	51.6	16.9	34.7
	9	49.3	18.3	31	46.9	16	30.9	52.9	18.1	34.8

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 3	1	43.8	13.4	30.4	43.3	12.9	30.4	46.4	11	35.4
	2	46.2	12.1	34.1	44.6	10.5	34.1	45.1	11.1	34
	3	42.8	13.3	29.5	45.2	11.1	34.1	43.6	11.1	32.5
	4	45.3	11.4	33.9	47.6	11.5	36.1	47.3	10.9	36.4
	5	41.5	10.9	30.6	43.3	11	32.3	46.8	10.2	36.6
	6	43.8	11.9	31.9	45.2	11.6	33.6	44.1	10.8	33.3
	7	42.1	14.8	27.3	49.7	11.2	38.5	49.2	11.3	37.9
	8	48.3	16	32.3	52.2	13.3	38.9	51.2	13.5	37.7
	9	45.4	15.6	29.8	46.8	11.9	34.9	47.2	12.4	34.8
Teeth 4	1	40.2	15.3	24.9	41.1	14.8	26.3	40.5	13.3	27.2
	2	41.3	15.9	25.4	43.1	13.7	29.4	39.4	11	28.4
	3	43.2	15.6	27.6	40.2	13.4	26.8	43.5	13	30.5
	4	49.8	18.6	31.2	51.9	17.3	34.6	50.4	15.7	34.7
	5	49.2	17.7	31.5	50	17.3	32.7	47.8	13.4	34.4
	6	48.6	17.8	30.8	48.9	13.9	35	49.7	12.7	37
	7	47.3	16.8	30.5	46.8	14.2	32.6	49.7	14.7	35
	8	43.4	17.2	26.2	43.1	13.4	29.7	45.9	14.4	31.5
	9	43.2	17.4	25.8	42.5	13.3	29.2	46.1	13.9	32.2

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 5	1	48.7	24.4	24.3	48.2	23.9	24.3	47	23.8	23.2
	2	50	24.3	25.7	48.5	25.8	22.7	47.6	24.8	22.8
	3	47.3	26.3	21	49	26.5	22.5	47.2	25.2	22
	4	48.5	23.3	25.2	49.6	23.8	25.8	49.9	22.8	27.1
	5	47.6	24.6	23	48.9	25.8	23.1	48.9	25.9	23
	6	47.5	26.8	20.7	47.9	25.6	22.3	49.5	24.9	24.6
	7	52.2	24.7	27.5	51.3	25.8	25.5	52.4	24.8	27.6
	8	50.8	26.2	24.6	52.8	26.8	26	52.1	25.2	26.9
	9	51.5	25.9	25.6	50.1	25.4	24.7	51.9	26.1	25.8
Teeth 6	1	42.5	22.2	20.3	44	21.2	22.8	43.3	20.5	22.8
	2	43.8	21.3	22.5	44.3	21.8	22.5	45	21.1	23.9
	3	44.7	21.6	23.1	45.6	20.9	24.7	44.3	21.3	23
	4	43.6	23.3	20.3	43.2	23	20.2	44	20	24
	5	43.5	22	21.5	44	22.1	21.9	43.8	22.2	21.6
	6	43	22.2	20.8	43.1	22	21.1	43.2	22.1	21.1
	7	43.2	22.6	20.6	43.4	22.1	21.3	43	20.2	22.8
	8	44	22.5	21.5	43.2	21.2	22	43.4	21.2	22.2
	9	44.6	22.1	22.5	44.4	21	23.4	44.5	20.8	23.7

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 7	1	35.9	19.9	16	37.1	15.8	21.3	35.4	15.8	19.6
	2	35	18.1	16.9	36.1	15.8	20.3	36.4	13.6	22.8
	3	35.5	18.8	16.7	35.6	16.9	18.7	37	15.8	21.2
	4	36.5	20.7	15.8	35.8	15	20.8	34	16	18
	5	34.5	20.3	14.2	33.4	16.5	16.9	34.9	14.3	20.6
	6	34.8	20.5	14.3	34.2	14.1	20.1	35.1	14.8	20.3
	7	33.3	17.6	15.7	34.9	13.7	21.2	32.3	13.7	18.6
	8	32.8	17.4	15.4	33.7	16.3	17.4	31.9	15.7	16.2
	9	33.1	16.5	16.6	33.5	13.9	19.6	32.4	16.9	15.5
Teeth 8	1	36.5	19.4	17.1	39.1	20.2	18.9	38.7	19.7	19
	2	38.2	19.7	18.5	38	19.7	18.3	39.2	18.7	20.5
	3	38.5	19.9	18.6	38.4	18.4	20	39.8	18.3	21.5
	4	32.5	20.1	12.4	32.4	19.6	12.8	33	16.8	16.2
	5	31.3	19.9	11.4	32.8	20	12.8	32.2	15.6	16.6
	6	32.4	19.7	12.7	32.6	19.4	13.2	31.3	15	16.3
	7	30.4	18.7	11.7	31.9	18.2	13.7	31.5	14.6	16.9
	8	31.6	19.9	11.7	31.8	17.8	14	31.8	14.8	17
	9	31.3	20	11.3	31	18.9	12.1	30.2	16	14.2

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 9	1	35.9	20.4	15.5	35.1	15.3	19.8	34.8	14.6	20.2
	2	36	19.2	16.8	34.6	13.5	21.1	35.2	13.8	21.4
	3	35.3	19.7	15.6	35.8	14.1	21.7	35.7	15.2	20.5
	4	36.8	20.1	16.7	36.8	20	16.8	36.5	17.6	18.9
	5	35.4	19.1	16.3	36	19.7	16.3	35.9	16.4	19.5
	6	35.8	19.8	16	35.4	19.3	16.1	36	15.9	20.1
	7	35.3	19.6	15.7	35.6	18	17.6	35	17.9	17.1
	8	36	20.5	15.5	36.1	17	19.1	36.2	16.7	19.5
	9	35.9	19.7	16.2	35.8	19.3	16.5	35.7	14.8	20.9
Teeth 10	1	25.7	19.6	6.1	26.6	16	10.6	26.3	14.6	11.7
	2	26	18.2	7.8	26.1	15.3	10.8	26.8	15.3	11.5
	3	25.3	18.6	6.7	25.9	14.5	11.4	25.7	13.1	12.6
	4	22.3	18.7	3.6	24.4	16.7	7.7	26.4	14.1	12.3
	5	24.6	17.9	6.7	24.3	16.2	8.1	25.8	14.3	11.5
	6	24.8	19.3	5.5	24	15	9	24.6	13	11.6
	7	26.7	17.5	9.2	26.9	15.6	11.3	27.9	14	13.9
	8	26	18.3	7.7	27.3	16.7	10.6	26.5	15.4	11.1
	9	27.5	17.9	9.6	26	16.8	9.2	27.1	15.5	11.6

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 11	1	21	17.2	3.8	20.6	17	3.6	19.9	13.5	6.4
	2	20.5	17.9	2.6	21.1	17.3	3.8	20.8	15.1	5.7
	3	20.8	17.5	3.3	20.9	16.9	4	20.6	14.6	6
	4	21.8	16.9	4.9	22.1	15	7.1	20.8	15.2	5.6
	5	22.1	17.3	4.8	22	15.1	6.9	21.3	14.9	6.4
	6	20.9	17.5	3.4	21.8	16.5	5.3	21.7	13.8	7.9
	7	19.8	19.1	0.7	20.8	16.1	4.7	20.5	11.8	8.7
	8	21.2	17.3	3.9	19.9	16.7	3.2	20.4	12.5	7.9
	9	20.5	17.6	2.9	20.6	16.4	4.2	19.9	11.9	8
Teeth 12	1	21.1	19	2.1	21.3	18.8	2.5	20.4	18.4	2
	2	23	18.8	4.2	20.9	18.7	2.2	21	18.8	2.2
	3	22.4	19.3	3.1	21	17.9	3.1	20.8	16.9	3.9
	4	25.4	19.8	5.6	25.9	19.3	6.6	26.1	14	12.1
	5	25	19.2	5.8	24.8	19	5.8	26	14.9	11.1
	6	24.9	18.9	6	25.2	18.8	6.4	25.8	13.7	12.1
	7	23.1	18.6	4.5	24.2	19	5.2	23.8	16.7	7.1
	8	22.8	18.9	3.9	24.3	19.1	5.2	23.2	15	8.2
	9	22.1	18.8	3.3	24	18.8	5.2	23.6	14.6	9

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 13	1	62.5	19.1	43.4	60.7	16	44.7	55.7	16.2	39.5
	2	59.1	21	38.1	60.8	15	45.8	60.3	15.4	44.9
	3	67.8	18.7	49.1	62.4	15.1	47.3	61.7	14.3	47.4
	4	59.7	17.3	42.4	58.4	16.5	41.9	63.5	16.9	46.6
	5	63	17.2	45.8	62.2	17.4	44.8	59.9	17.6	42.3
	6	57.1	18.8	38.3	62.4	17.9	44.5	59.7	18.5	41.2
	7	47.9	17.6	30.3	52.3	18.3	34	50.3	17.4	32.9
	8	49.2	18.6	30.6	53.2	17.1	36.1	51.6	15.9	35.7
	9	47.3	18.3	29	50.9	16	34.9	52.9	17.1	35.8
Teeth 14	1	35.8	23.1	12.7	33.5	17.5	16	33.1	14.2	18.9
	2	34.8	19	15.8	33.8	17.2	16.6	33.7	14.5	19.2
	3	34.1	21.5	12.6	34.1	15.3	18.8	33.2	12.1	21.1
	4	32.7	19.1	13.6	31.8	13.5	18.3	33.7	16.1	17.6
	5	32.8	20.6	12.2	32.1	14	18.1	33.6	15.6	18
	6	32.4	20.7	11.7	32.6	14.8	17.8	33.2	16.8	16.4
	7	32.7	24.5	8.2	31.9	13.2	18.7	33.7	17.4	16.3
	8	32	21	11	31.8	19	12.8	32.6	13.5	19.1
	9	32.2	22.2	10	32.4	15.5	16.9	33	14.9	18.1

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 15	1	33.1	20.1	13	34.4	20	14.4	34.2	17.3	16.9
	2	33.3	19.4	13.9	34.8	18.6	16.2	33.5	18.7	14.8
	3	31.4	19.6	11.8	34	19.2	14.8	34.6	19.5	15.1
	4	37.1	24.5	12.6	37.2	23.2	14	37.9	14.1	23.8
	5	34.6	22.2	12.4	36.6	22.4	14.2	35.5	12.2	23.3
	6	35.1	23.1	12	35.8	23.9	11.9	36.5	16	20.5
	7	33.4	18.4	15	33.2	18.3	14.9	33.5	15.9	17.6
	8	34	19	15	32.6	18.6	14	33.4	16.2	17.2
	9	33.8	18.6	15.2	33.8	19.7	14.1	34.2	13.5	20.7
Teeth 16	1	45.4	13	32.4	52.1	13.4	38.7	54.3	15.8	38.5
	2	41.5	15.8	25.7	48.9	12.3	36.6	54.5	16.2	38.3
	3	46.7	16	30.7	49.2	11.4	37.8	52.4	12.3	40.1
	4	44.6	12.1	32.5	52.6	12.8	39.8	54.1	11	43.1
	5	41.8	13.2	28.6	51	12	39	53.4	10.8	42.6
	6	43	11	32	49.2	12.4	36.8	49.5	11.8	37.7
	7	45.4	13.7	31.7	52.4	13	39.4	54.1	10.8	43.3
	8	42.1	11.7	30.4	50.2	12.8	37.4	54.4	11.4	43
	9	42.5	12.6	29.9	49.7	11.2	38.5	52.6	11.9	40.7

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	47.2	18.8	28.4	41.1	20.3	20.8	57.1	17.3	39.8
	2	48.2	19.9	28.3	41.4	18.5	22.9	57.5	16.4	41.1
	3	47	20	27	52.3	17.2	35.1	52.1	16.1	36
	4	46.7	19.2	27.5	46	17.3	28.7	46.1	14.1	32
	5	44.2	19	25.2	56.2	18.2	38	52.6	13.8	38.8
	6	41.9	22.8	19.1	55.1	20	35.1	46.6	15.2	31.4
	7	42.3	17.6	24.7	41.9	19.1	22.8	42.4	13.6	28.8
	8	45.8	17.7	28.1	45.8	18.2	27.6	46.9	13.3	33.6
	9	38.3	22.5	15.8	46.8	22.7	24.1	40.7	12.3	28.4
Teeth 2	1	49.9	15.8	34.1	45.7	13.1	32.6	52.8	15.4	37.4
	2	50.1	14.3	35.8	56.8	14.7	42.1	56	13.3	42.7
	3	54	14.5	39.5	56.2	14.4	41.8	52.1	12.7	39.4
	4	38.6	16.6	22	35.9	10.4	25.5	43.5	14.1	29.4
	5	36.2	17.4	18.8	42.2	15.4	26.8	47.9	14.9	33
	6	30.4	17.4	13	35.1	13.8	21.3	46.8	15.8	31
	7	59	15.6	43.4	55.3	15.5	39.8	52.6	14.8	37.8
	8	57.8	16.7	41.1	54.1	14.8	39.3	55.8	13.9	41.9
	9	59.6	16.5	43.1	53.8	15.8	38	56.5	14.6	41.9

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 3	1	44.2	10.3	33.9	43.5	10.2	33.3		11	37.8
	2	44	12.4	31.6	48.8	12.4	36.4	44.6	11.8	32.8
	3	43.7	13.3	30.4	45.1	11.5	33.6	46.2	11.6	34.6
	4	42.2	14.2	28	44.5	12.4	32.1	43.6	12.6	31
	5	44.3	12.1	32.2	43.2	11.8	31.4	43.8	11.9	31.9
	6	42.5	13.5	29	42.6	11.6	31	44.1	11.8	32.3
	7	43.1	14.1	29	43.2	12.4	30.8	46.4	12.5	33.9
	8	42.4	12.3	30.1	46.5	13	33.5	48.8	12.1	36.7
	9	43.5	13.3	30.2	44.1	12.2	31.9	43.5	12.1	31.4
Teeth 4	1	42.1	15	27.1	42.2	15.6	26.6	40	15.6	24.4
	2	45.2	15.9	29.3	45.6	16.1	29.5	43.3	15.8	27.5
	3	48.1	15.3	32.8	41.3	15	26.3	45.4	15.3	30.1
	4	52.6	18.4	34.2	51.8	16.9	34.9	51.3	15.9	35.4
	5	48.8	18.5	30.3	48.7	14.3	34.4	49.8	16.1	33.7
	6	45.6	18	27.6	42.1	14.6	27.5	47.6	15.4	32.2
	7	49.8	15.5	34.3	50.4	15.6	34.8	48.7	15.8	32.9
	8	48.1	15.2	32.9	46.1	14.2	31.9	42.3	14.9	27.4
	9	47.6	15.6	32	45.3	15	30.3	45.6	15.3	30.3

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 5	1	48	21.5	26.5	47.8	20.4	27.4	48.1	17.9	30.2
	2	48.2	21.5	26.7	47.53	21.5	26.03	48	18.4	29.6
	3	48.6	21.6	27	47	21.3	25.7	48.2	20.1	28.1
	4	49.1	22.3	26.8	48.5	21.3	27.2	49.1	22.2	26.9
	5	48.2	21.1	27.1	48.4	20.6	27.8	49.5	20.7	28.8
	6	49	20.3	28.7	47.9	21.6	26.3	47.3	21.1	26.2
	7	51.4	21.7	29.7	47.8	21.4	26.4	46.9	21.6	25.3
	8	49.8	21.2	28.6	46.5	21.2	25.3	47.3	21.3	26
	9	50.2	21.8	28.4	47.4	21.6	25.8	48	21	27
Teeth 6	1	47.8	22.1	25.7	47.2	21.8	25.4	47.3	21.6	25.7
	2	46.9	20.8	26.1	47.6	20.8	26.8	47	21.7	25.3
	3	47.3	21.7	25.6	47.1	20.3	26.8	47.8	20.4	27.4
	4	49.6	24.7	24.9	49.2	22.3	26.9	47.9	23.1	24.8
	5	50.3	24.3	26	49	22.7	26.3	49.1	22.3	26.8
	6	49.4	23.6	25.8	48.8	23	25.8	48.3	22.7	25.6
	7	51	22.4	28.6	47.7	22.9	24.8	49	22.4	26.6
	8	49.3	23.1	26.2	47.9	22.6	25.3	48.8	22.6	26.2
	9	48.9	23.3	25.6	48.3	23	25.3	47	22.6	24.4

PMRC		VHN AT 100 μm			VHN AT 200 μm m			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 7	1	31.8	19.8	12	31.3	16	15.3	30.3	16.2	14.1
	2	32.1	18.7	13.4	31.6	17.8	13.8	32.6	18.1	14.5
	3	31.3	19.9	11.4	31.9	17.9	14	31.7	18	13.7
	4	41	18.8	22.2	42.1	19.3	22.8	38.2	16.5	21.7
	5	40.9	19.5	21.4	42.3	16.3	26	40.1	18.9	21.2
	6	42.4	18.4	24	43.1	18.3	24.8	40.4	18	22.4
	7	40.5	18	22.5	43.4	15.8	27.6	40.3	16.1	24.2
	8	42.1	19.8	22.3	41.5	14.5	27	42.5	14.2	28.3
	9	40.5	17	23.5	40.1	14.3	25.8	41.6	17.1	24.5
Teeth 8	1	33.8	18.6	15.2	36.9	19.2	17.7	36.3	14.3	22
	2	35.7	18.6	17.1	35.3	18.3	17	35.1	15.2	19.9
	3	36	19.2	16.8	34.8	18	16.8	35	14.2	20.8
	4	36.9	19.7	17.2	36.1	16.7	19.4	35.7	13.8	21.9
	5	37.8	19.8	18	36.5	15.9	20.6	36	15	21
	6	36.1	20.5	15.6	35.9	14.5	21.4	36.8	15	21.8
	7	32.4	20.3	12.1	31.5	12.2	19.3	33.1	14.8	18.3
	8	32.1	20.6	11.5	30.9	13.9	17	31.8	14.1	17.7
	9	31.9	19.6	12.3	31.8	13.7	18.1	33	14.8	18.2

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 9	1	39.2	19.2	20	39.7	18.5	21.2	38.9	14.3	24.6
	2	39	21	18	39.1	19.2	19.9	38.5	13.2	25.3
	3	38.7	19.9	18.8	38.9	19.8	19.1	39.4	13.7	25.7
	4	39.1	21.8	17.3	39.6	20.3	19.3	38.5	12.5	26
	5	38.9	18.9	20	39	19.3	19.7	38.1	14.8	23.3
	6	38.7	20.3	18.4	38	19.7	18.3	39.3	15	24.3
	7	36.9	20.7	16.2	36.1	19.6	16.5	36.6	16.2	20.4
	8	35.8	20	15.8	36.3	19.4	16.9	36.7	17.9	18.8
	9	36.4	19.8	16.6	35.8	19.9	15.9	36	16.3	19.7
Teeth 10	1	27.9	18.3	9.6	26.5	17.7	8.8	26	17.5	8.5
	2	26.9	18.1	8.8	26.3	18.1	8.2	27	17.4	9.6
	3	27	17.8	9.2	26.4	17.6	8.8	26.3	18.2	8.1
	4	24	12.6	11.4	26.9	18.7	8.2	26.5	18.8	7.7
	5	25.4	19.9	5.5	25.9	18.8	7.1	26.1	20.1	6
	6	24.8	19.1	5.7	26	19.8	6.2	16.3	19.3	-3
	7	27.3	19	8.3	26.6	19.8	6.8	26.3	19.4	6.9
	8	26.4	19.7	6.7	26.1	18	8.1	25.9	18.9	7
	9	26.8	18.4	8.4	26.8	18.6	8.2	26.8	19	7.8

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 11	1	22.1	16.3	5.8	21.4	16.4	5	22.3	15.7	6.6
	2	21.4	17.6	3.8	20.5	16.5	4	21.4	15.1	6.3
	3	22.6	16.5	6.1	21.1	16.6	4.5	21.9	13.5	8.4
	4	20.6	20.8	-0.2	20.9	17.6	3.3	21.6	13	8.6
	5	20.9	21	-0.1	20.8	18	2.8	20.9	14.3	6.6
	6	21.6	19.7	1.9	20.6	19.1	1.5	21	13.9	7.1
	7	22.6	21	1.6	22.8	18.9	3.9	22.9	13.6	9.3
	8	22.5	19.5	3	22.6	17.4	5.2	23.2	13.7	9.5
	9	22.8	19.3	3.5	23	18.4	4.6	22.4	17.8	4.6
Teeth 12	1	44.1	18.8	25.3	43.8	18.5	25.3	42.7	18.7	24
	2	43.8	18.1	25.7	43.4	18.3	25.1	42	17.9	24.1
	3	44	18.3	25.7	43	17.9	25.1	41.3	18.3	23
	4	42	19.9	22.1	39.8	18.9	20.9	42.9	19.3	23.6
	5	41.5	18.9	22.6	39	18.4	20.6	42	19.1	22.9
	6	41.8	19.3	22.5	39.6	17.6	22	41.5	18.8	22.7
	7	35.4	18.9	16.5	35.5	17.3	18.2	35.9	15.9	20
	8	35.2	18.2	17	35.4	17.9	17.5	35.6	16.4	19.2
	9	35.4	18.1	17.3	34.9	17.1	17.8	35.3	16.1	19.2

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 13	1	59	15.8	43.2	55.4	13.1	42.3	52.8	15.4	37.4
	2	57.8	14.3	43.5	54.1	14.7	39.4	56	13.3	42.7
	3	59.6	14.5	45.1	53.8	14.4	39.4	52.1	12.7	39.4
	4	48.6	16.6	32	49.9	14.4	35.5	47.9	14.1	33.8
	5	45.9	17.4	28.5	45.7	15.4	30.3	46.8	14.9	31.9
	6	43.5	17.4	26.1	46.8	16.8	30	45.3	16.8	28.5
	7	46.2	15.6	30.6	50.1	15.5	34.6	47.5	14.8	32.7
	8	47.9	16.7	31.2	50.8	14.8	36	48.3	13.9	34.4
	9	46.5	16.5	30	48.2	15.8	32.4	48.9	13	35.9
Teeth 14	1	33.1	20.1	13	34.4	20	14.4	34.2	17.3	16.9
	2	33.3	19.4	13.9	34.8	18.6	16.2	33.5	18.7	14.8
	3	31.4	19.6	11.8	34	19.2	14.8	34.6	19.5	15.1
	4	37.1	24.5	12.6	37.2	23.2	14	37.9	14.1	23.8
	5	34.6	22.2	12.4	36.6	22.4	14.2	35.5	12.2	23.3
	6	35.1	23.1	12	35.8	23.9	11.9	36.5	16	20.5
	7	33.4	18.4	15	33.2	18.3	14.9	33.5	15.9	17.6
	8	34	19	15	32.6	18.6	14	33.4	16.2	17.2
	9	33.8	18.6	15.2	33.8	19.7	14.1	34.2	13.5	20.7

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 15	1	34.8	17.4	17.4	36.2	14.5	21.7	39.8	14.6	25.2
	2	38.9	17.7	21.2	36.6	15.4	21.2	30.5	16.7	13.8
	3	37.7	16.3	21.4	36.3	15.9	20.4	36.6	15.5	21.1
	4	35.6	17.6	18	34.8	15.6	19.2	39	16.4	22.6
	5	34.4	17.6	16.8	35.7	13.5	22.2	38.6	17	21.6
	6	34	17.9	16.1	36.6	17.8	18.8	34.5	14.3	20.2
	7	30.5	15.1	15.4	39	15.3	23.7	36.4	13.7	22.7
	8	37.8	16.4	21.4	37	14.7	22.3	36.8	14.1	22.7
	9	39.8	17.4	22.4	38.8	15.5	23.3	37	12.3	24.7
Teeth 16	1	43.5	12.4	31.1	43.8	10.3	33.5	54.3	11.3	43
	2	42.7	12	30.7	42.7	11.4	31.3	54.6	11.8	42.8
	3	42.7	12.8	29.9	44.1	11.8	32.3	51	12	39
	4	43.1	12	31.1	43.4	13	30.4	54.1	12.3	41.8
	5	44.1	11.9	32.2	42	12.5	29.5	54.8	12.2	42.6
	6	43.8	12.3	31.5	44.5	12.8	31.7	51.4	11.9	39.5
	7	43.5	11.4	32.1	41.5	12.7	28.8	54.1	13.2	40.9
	8	43.8	12	31.8	42.9	12.2	30.7	54	11.7	42.3
	9	44.1	11.8	32.3	44.9	13	31.9	51.8	12	39.8

Descriptive of the mean delta of dentin changes among the four groups studied

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Negative	432	25.6272	8.0666	.3881	9.10	51.30
Positive	432	18.0748	8.5533	.4115	2.80	50.50
RMGC	432	22.3315	11.4990	.5532	.70	51.70
PMRC	432	23.6299	9.8788	.4753	-3.00	45.10
Total	1728	22.4158	9.9758	.2400	-3.00	51.70

ANOVA compared the mean delta of dentin changes after soaking in the demineralization solution 24 hours among four groups.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13235.935	3	4411.978	47.95	.000
Within Groups	158628.07	1724	92.012		
Total	171864.01	1727			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
	(I) Type of filling	(J) Type of filling			
Bonferroni	negative	Positive	7.5524	0.6527	.000
		RMGC	3.2957	0.6527	.000
		PMRC	1.9972	0.6527	0.013
	positive	Negative	-7.5524	0.6527	.000
		RMGC	-4.2567	0.6527	.000
		PMRC	-5.5552	0.6527	.000
	RMGC	Negative	-3.2957	0.6527	.000
		Positive	4.2567	0.6527	.000
		PMRC	-1.2985	0.6527	0.281
	F2000	Negative	-1.9972	0.6527	0.013
		Positive	5.5552	0.6527	.000
		RMGC	1.2985	0.6527	0.281

The mean difference is significant at the .05 level.

Descriptive of negative group as a function of distances

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100microns	144	25.4550	7.7470	.6456	9.10	51.30
200microns	144	25.7861	8.5106	.7092	10.40	47.80
300microns	144	25.6404	7.9759	.6647	11.00	46.40
Total	432	25.6272	8.0666	.3881	9.10	51.30

ANOVA compared the three locations of negative group

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.932	2	3.966	.061	.941
Within Groups	28036.922	429	65.354		
Total	28044.854	431			

Descriptive of positive group as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100microns	144	18.5514	9.1061	.7588	4.00	40.30
200microns	144	17.8361	8.3095	.6925	3.60	38.00
300microns	144	17.8368	8.2577	.6881	2.80	50.50
Total	432	18.0748	8.5533	.4115	2.80	50.50

ANOVA compared the three locations of positive group

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	49.068	2	24.534	.334	.716
Within Groups	31482.607	429	73.386		
Total	31531.675	431			

Descriptive of resin modified glass ionomer cement as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100microns	144	19.9792	11.1523	.9294	.70	49.10
200microns	144	22.9111	11.8792	.9899	2.20	51.70
300microns	144	24.1042	11.1341	.9278	2.00	47.40
Total	432	22.3315	11.4990	.5532	.70	51.70

ANOVA compared the three locations of resin modified glass ionomer cement

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1297.695	2	648.847	4.998	.007
Within Groups	55692.557	429	129.819		
Total	56990.252	431			

Multiple Comparisons of the three locations of resin modified glass ionomer cement

			Mean Difference (I-J)	Std. Error	Sig.
	(I) level from filling	(J) level from filling			
Bonferroni	100 microns	200 microns	-2.9319	1.3428	.089
		300 microns	-4.1250	1.3428	.007
	200 microns	100 microns	2.9319	1.3428	.089
		300 microns	-1.1931	1.3428	1.000
	300 microns	100 microns	4.1250	1.3428	.007
		200 microns	1.1931	1.3428	1.000

The mean difference is significant at the .05 level.

Descriptive of polyacid modified resin composite as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	144	22.2292	9.8210	.8184	-.20	45.10
200 microns	144	23.2919	9.5161	.7930	1.50	42.30
300 microns	144	25.3687	10.0991	.8416	-3.00	43.00
Total	432	23.6299	9.8788	.4753	-3.00	45.10

ANOVA compared the three locations of polyacid modified resin composite

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	734.384	2	367.192	3.812	0.023
Within Groups	41326.906	429	96.333		
Total	42061.29	431			

Multiple Comparisons the three locations of polyacid modified resin composite

			Mean Difference (I-J)	Std. Error	Sig.
	(I) level from filling	(J) level from filling			
Bonferroni	100 microns	200 microns	-1.0627	1.1567	1.000
		300 microns	-3.1396	1.1567	.021
	200 microns	100 microns	1.0627	1.1567	1.000
		300 microns	-2.0768	1.1567	.220
	300 microns	100 microns	3.1396	1.1567	.021
		200 microns	2.0768	1.1567	.220

The mean difference is significant at the .05 level.

APPENDIX 4.5

The microhardness test of enamel surface adjacent to different restorative materials after soaking in the demineralization solution for 72 hours

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	287	190	97	300	191	109	298	198	100
	2	289	205	84	291	190	101	299	198	101
	3	260	220	40	255	210	45	278	201	77
Teeth 2	1	281	29.9	251.1	299	30.8	268.2	290	29.6	260.4
	2	274	50.8	223.2	290	50.1	239.9	284	54.6	229.4
	3	286	32.1	253.9	266	29.9	236.1	287	27.7	259.3
Teeth 3	1	257	37.9	219.1	278	37	241	267	38	229
	2	287	37.2	249.8	277	37.7	239.3	263	36.6	226.4
	3	279	37.8	241.2	269	36.9	232.1	271	37.9	233.1
Teeth 4	1	207	27.9	179.1	212	29	183	220	30.1	189.9
	2	230	16.5	213.5	234	24.5	209.5	242	29	213
	3	215	31	184	210	39.8	170.2	224	33	191
Teeth 5	1	240	28.4	211.6	250	30.5	219.5	241	30.1	210.9
	2	236	20.9	215.1	232	22.1	209.9	251	21.8	229.2
	3	270	16.5	253.5	250	17.1	232.9	262	16.1	245.9
Teeth 6	1	218	32.4	185.6	210	34.8	175.2	202	30.3	171.7
	2	209	13.3	195.7	209	13.6	195.4	218	15.8	202.2
	3	218	13	205	201	13.5	187.5	231	12	219
Teeth 7	1	201	29.7	171.3	199	28.3	170.7	211	33.2	177.8
	2	231	23.2	207.8	228	27.1	200.9	232	24.1	207.9
	3	240	45.5	194.5	228	33.5	194.5	248	38.1	209.9

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 8	1	258	151	107	236	160	76	255	152	103
	2	251	116	135	264	122	142	275	156	119
	3	232	126	106	272	140	132	262	134	128
Teeth 9	1	286	50.7	235.3	282	50	232	275	53.4	221.6
	2	300	52.6	247.4	279	51.7	227.3	285	56.1	228.9
	3	271	59.3	211.7	259	49.9	209.1	265	52.6	212.4
Teeth 10	1	277	67.5	209.5	294	64.8	229.2	290	81	209
	2	290	79	211	278	69.3	208.7	276	60	216
	3	286	68.3	217.7	289	78	211	283	71.3	211.7
Teeth 11	1	269	99.3	169.7	280	99.7	180.3	279	103	176
	2	272	93.6	178.4	271	100	171	283	112	171
	3	263	90.1	172.9	270	98.1	171.9	260	80.1	179.9
Teeth 12	1	250	28.4	221.6	240	30.5	209.5	241	30.1	210.9
	2	236	20.9	215.1	232	22.1	209.9	252	21.8	230.2
	3	270	16.5	253.5	250	16.1	233.9	262	16.1	245.9
Teeth 13	1	290	70	220	274	54.5	219.5	287	48.5	238.5
	2	242	54.5	187.5	291	58.9	232.1	255	67.8	187.2
	3	263	55.6	207.4	245	78	167	287	45.9	241.1
Teeth 14	1	299	39.9	259.1	287	30.8	256.2	284	29.6	254.4
	2	281	50.8	230.2	266	50.1	215.9	274	54.6	219.4
	3	290	32.1	257.9	290	29.9	260.1	286	27.7	258.3
Teeth 15	1	252	47.9	204.1	269	37	232	277	38	239
	2	278	37.2	240.8	271	37.7	233.3	263	36.6	226.4
	3	267	37.8	229.2	287	36.9	250.1	269	37.9	231.1

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	281	243	38	268	232	36	270	230	40
	2	266	240	26	280	249	31	261	242	19
	3	277	234	43	269	235	34	263	248	15
Teeth 2	1	285	236	49	270	240	30	280	291	-11
	2	297	229	68	280	236	44	284	232	52
	3	290	269	21	269	256	13	270	262	8
Teeth 3	1	240	220	20	252	221	31	261	234	27
	2	252	251	1	263	252	11	270	258	12
	3	250	246	4	264	250	14	263	259	4
Teeth 4	1	226	198	28	254	191	63	237	213	24
	2	200	191	9	204	180	24	219	181	38
	3	229	180	49	217	152	65	226	154	72
Teeth 5	1	194	176	18	184	178	6	186	170	16
	2	210	217	-7	203	210	-7	197	208	-11
	3	193	180	13	198	177	21	187	178	9
Teeth 6	1	213	170	43	212	195	17	224	179	45
	2	200	128	72	241	202	39	239	195	44
	3	.	.	.	214	152	62	254	218	36
Teeth 7	1	244	201	43	237	199	38	239	198	41
	2	207	217	-10	201	219	-18	221	223	-2
	3	245	216	29	240	230	10	243	229	14
Teeth 8	1	236	229	7	248	220	28	240	224	16
	2	259	243	16	263	235	28	260	240	20
	3	259	230	29	280	220	60	260	232	28
Teeth 9	1	277	254	23	298	244	54	299	258	41
	2	308	274	34	304	268	36	276	262	14
	3	291	263	28	288	252	36	299	269	30

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 10	1	292	213	79	281	226	55	270	210	60
	2	282	234	48	290	239	51	298	203	95
	3	279	219	60	276	201	75	283	201	82
Teeth 11	1	243	212	31	261	243	18	261	248	13
	2	269	220	49	275	262	13	254	232	22
	3	258	239	19	289	249	40	269	260	9
Teeth 12	1	284	178	106	283	178	105	286	170	116
	2	210	217	-7	208	210	-2	293	208	85
	3	287	180	107	268	177	91	278	178	100
Teeth 13	1	255	199	56	282	229	53	282	240	42
	2	293	202	91	293	243	50	293	224	69
	3	287	231	56	289	232	57	273	230	43
Teeth 14	1	270	236	34	269	240	29	270	241	29
	2	285	229	56	297	236	61	269	232	37
	3	280	269	11	284	256	28	297	256	41
Teeth 15	1	287	220	67	248	221	27	279	234	45
	2	270	251	19	240	252	-12	285	258	27
	3	257	246	11	259	250	9	279	259	20

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	268	238	30	255	240	15	243	208	35
	2	247	235	12	248	220	28	253	213	40
	3	262	248	14	252	220	32	248	203	45
Teeth 2	1	250	200	50	255	219	36	261	201	60
	2	253	220	33	270	210	60	280	190	90
	3	261	229	32	258	208	50	245	209	36
Teeth 3	1	269	251	18	279	248	31	285	232	53
	2	258	245	13	266	224	42	267	236	31
	3	260	236	24	256	220	36	255	227	28
Teeth 4	1	259	227	32	267	205	62	255	202	53
	2	259	215	44	255	206	49	231	200	31
	3	241	228	13	261	232	29	243	204	39
Teeth 5	1	195	162	33	217	160	57	206	153	53
	2	234	223	11	240	204	36	241	211	30
	3	230	222	8	248	210	38	251	212	39
Teeth 6	1	239	157	82	245	120	125	254	109	145
	2	220	197	23	214	180	34	217	170	47
	3	220	156	64	221	134	87	223	133	90
Teeth 7	1	257	223	34	251	209	42	259	220	39
	2	237	198	39	244	190	54	243	202	41
	3	247	223	24	234	198	36	231	205	26
Teeth 8	1	229	75.8	153.2	240	54.5	185.5	231	55.6	175.4
	2	240	134	106	244	139	105	243	124	119
	3	238	197	41	241	139	102	250	163	87
Teeth 9	1	290	268	22	274	208	66	280	200	80
	2	262	235	27	285	199	86	275	196	79
	3	263	215	48	291	201	90	297	198	99

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 10	1	257	220	37	280	218	62	252	220	32
	2	255	215	40	273	230	43	260	246	14
	3	232	195	37	246	190	56	265	200	65
Teeth 11	1	246	123	123	248	98.7	149.3	244	99.1	144.9
	2	286	140	146	250	129	121	240	93.7	146.3
	3	239	127	112	222	101	121	217	107	118.3
Teeth 12	1	235	102	133	217	95	122	206	89.5	116.5
	2	234	123	111	240	86.8	155.2	241	98.6	142.4
	3	230	122	108	248	97.6	150.4	251	101	150
Teeth 13	1	257	190	67	260	165	95	280	125	155
	2	280	187	93	265	132	133	231	130	101
	3	246	179	67	230	128	102	224	129	95
Teeth 14	1	255	190	65	258	101	157	253	119	134
	2	261	179	82	261	119	142	245	139	106
	3	250	180	70	280	143	137	270	148	122
Teeth 15	1	257	209	48	272	180	92	289	181	108
	2	260	210	50	273	201	72	279	198	81
	3	275	212	63	263	213	50	278	203	75

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	251	220	31	238	204	34	250	202	48
	2	252	211	41	250	201	49	260	208	52
	3	235	198	37	267	202	65	277	202	75
Teeth 2	1	280	230	50	242	204	38	250	215	35
	2	278	228	50	252	210	42	246	208	38
	3	293	217	76	300	218	82	290	209	81
Teeth 3	1	257	231	26	272	230	42	289	220	69
	2	260	235	25	273	223	50	279	214	65
	3	275	240	35	263	213	50	278	221	57
Teeth 4	1	257	209	48	259	180	79	249	181	68
	2	232	210	22	235	202	33	238	188	50
	3	258	232	26	250	210	40	247	201	46
Teeth 5	1	225	88.3	136.7	207	45.5	161.5	210	37.1	172.9
	2	209	75.6	133.4	217	32.4	184.6	202	32.5	169.5
	3	238	60.1	177.9	235	50.7	184.3	205	35.1	169.9
Teeth 6	1	252	157	95	.	.	.	259	159	100
	2	209	187	22	202	130	72	206	123	83
	3	220	194	26	231	128	103	229	134	95
Teeth 7	1	236	220	16	230	203	27	238	208	30
	2	210	200	10	220	207	13	225	179	46
	3	235	199	36	226	186	40	215	185	30
Teeth 8	1	280	158	122	264	130	134	279	125	154
	2	240	124	116	242	129	113	250	130	120
	3	270	190	80	274	147	127	291	135	156
Teeth 9	1	293	180	113	297	164	133	293	179	114
	2	287	180	107	282	146	136	282	173	109
	3	230	214	16	280	189	91	289	193	96

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 10	1	230	200	30	244	192	52	229	189	40
	2	231	210	21	238	195	43	239	201	38
	3	280	199	81	271	187	84	274	185	89
Teeth 11	1	270	132	138	281	119	162	260	109	151
	2	210	109	101	200	95.7	104.3	284	105	179
	3	224	99.8	124.2	210	81.8	128.2	270	87.6	182.4
Teeth 12	1	225	60.1	164.9	207	45.5	161.5	210	37.1	172.9
	2	209	58.5	150.5	206	32.4	173.6	202	32.5	169.5
	3	238	65.6	172.4	205	40.7	164.3	206	35.1	170.9
Teeth 13	1	271	171	100	239	112	127	280	133	147
	2	265	140	125	274	119	155	239	126	113
	3	260	152	108	271	143	128	227	108	119
Teeth 14	1	242	150	92	246	101	145	264	115	149
	2	250	138	112	252	102	150	290	118	172
	3	280	147	133	278	118	160	300	109	191
Teeth 15	1	267	181	86	263	153	110	271	131	140
	2	278	191	87	277	160	117	269	161	108
	3	284	150	134	286	144	142	279	132	147

Descriptive of mean delta of enamel changes after soaking in the demineralization solution for 72 hours among four group studies

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Negative	135	200.8719	47.4903	4.0873	40.00	268.20
Positive	134	35.2015	27.3460	2.3623	-18.00	116.00
RMGC	135	70.6474	43.9266	3.7806	8.00	185.50
PMRC	134	96.0619	51.5472	4.4530	10.00	191.00
Total	538	100.8260	75.5851	3.2587	-18.00	268.20

ANOVA compared the hardness changes among groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2054311.67	3	684770.557	360.752	.000
Within Groups	1013626.665	534	1898.177		
Total	3067938.336	537			

Multiple Comparisons of mean delta among four groups studies

Dependent Variable: DELTA

			Mean Difference (I-J)	Std. Error	Sig.
	(I) 1=Neg, 2=Pos, 3-RMGC, 4=PMRC	(J) 1=Neg, 2=Pos, 3-RMGC, 4=PMRC			
Bonferroni	Negative	Positive	165.6704	5.3128	.000
		RMGC	130.2244	5.3029	.000
		PMRC	104.8099	5.3128	.000
	Positive	Negative	-165.67	5.3128	.000
		RMGC	-35.4459	5.3128	.000
		PMRC	-60.8604	5.3227	.000
	RMGC	Negative	-130.224	5.3029	.000
		Positive	35.4459	5.3128	.000
		PMRC	-25.4145	5.3128	.000
	PMRC	Negative	-104.81	5.3128	.000
		Positive	60.8604	5.3227	.000
		RMGC	25.4145	5.3128	.000

The mean difference is significant at the .05 level.

Descriptive of negative group as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	45	200.0889	49.5364	7.3845	40.00	259.10
200 microns	45	199.3511	48.1918	7.1840	45.00	268.20
300 microns	45	203.1756	45.6484	6.8049	77.00	260.40
Total	135	200.8719	47.4903	4.0873	40.00	268.20

ANOVA compared the three locations of negative group as a function of distance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	370.473	2	185.237	.081	.922
Within Groups	301843.640	132	2286.694		
Total	302214.113	134			

Descriptive of positive group as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	44	36.0682	28.2830	4.2638	-10.00	10700
200 microns	45	34.5333	25.6892	3.8295	-18.00	105.00
300 microns	45	35.0222	28.5916	4.2622	-11.00	116.00
Total	134	35.2015	27.3460	2.3623	-18.00	116.00

ANOVA compared the three locations of positive group as a function of distance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	54.586	2	27.293	.036	.965
Within Groups	99402.973	131	758.801		
Total	99457.560	133			

Descriptive of resin modified glass ionomer cement as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	45	55.8933	38.4073	5.7254	8.00	153.20
200 microns	45	77.9867	44.8108	6.6800	15.00	185.50
300 microns	45	78.0622	45.3792	6.7647	14.00	175.40
Total	135	70.6474	43.9266	3.7806	8.00	185.50

ANOVA compared the three locations of resin modified glass ionomer cement group as a function of distance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14693.711	2	7346.855	3.977	.021
Within Groups	243865.646	132	1847.467		
Total	258559.357	134			

Multiple Comparisons of resin modified glass ionomer cement as a function of distance

			Mean Difference (I-J)	Std. Error	Sig.
	(I)1=100 micron, 2=200, 3=300	(J) 1=100 micron, 2=200, 3=300			
Bonferroni	100	200	-22.0933	9.0614	.048
		300	-22.1689	9.0614	.047
	200	100	22.0933	9.0614	.048
		300	-7.5556E-02	9.0614	1.000
	300	100	22.1689	9.0614	.047
		200	7.556E-02	9.0614	1.000

The mean difference is significant at the .05 level.

Descriptive of polyacid modified resin composite as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	45	80.7556	49.4370	7.3696	10.00	177.90
200 microns	44	100.6886	50.8213	7.6616	13.00	184.60
300 microns	45	106.8444	51.8042	7.7225	30.00	191.00
Total	134	96.0619	51.5472	4.4530	10.00	191.00

ANOVA compared the three locations of polyacid modified resin composite as a function of distance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16716.529	2	8358.265	3.252	.042
Within Groups	336679.107	131	2570.070		
Total	353395.636	133			

Multiple Comparisons of polyacid modified resin composite as a function of distance

Dependent Variable: DELTA

			Mean Difference (I-J)	Std. Error	Sig.
	(I)1=100 micron, 2=200, 3=300	(J) 1=100 micron, 2=200, 3=300			
Bonferroni	100	200	-19.9331	10.7482	.198
		300	-26.0889	10.6876	.048
	200	100	19.9331	10.7482	.198
		300	-6.1558	10.7482	1.000
	300	100	26.0889	10.6876	.048
		200	6.1558	10.7482	1.000

The mean difference is significant at the .05 level.

APPENDIX 4.6

The microhardness test of dentin surface adjacent to different restorative materials after soaking in the demineralization solution for 72 hours

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	40.4	14.6	25.8	41	15.8	25.2	41.3	14	27.3
	2	43.2	12.6	30.6	43.3	14.5	28.8	43	14	29
	3	45.7	12.8	32.9	46	12.9	33.1	45.3	13	32.3
Teeth 2	1	39.6	3.46	36.14	39.9	3.48	36.42	38	3.49	34.51
	2	40.2	3.18	37.02	39.7	3.86	35.84	40.1	3.87	36.23
	3	38.2	4.28	33.92	38.6	4.61	33.99	38.4	4.62	33.78
Teeth 3	1	39.9	10.7	29.2	40.1	11.2	28.9	40.5	11.7	28.8
	2	39.9	9.98	29.92	40.9	10.1	30.8	41	10.2	30.8
	3	42.1	13.9	28.2	41.3	12.1	29.2	41.5	12	29.5
Teeth 4	1	41	17.5	23.5	41.5	12.8	28.7	41.2	12.4	28.8
	2	41.3	19	22.3	41.5	13.1	28.4	41.6	14.3	27.3
	3	41	13.3	27.7	41.4	12.1	29.3	40.2	15.2	25
Teeth 5	1	40.3	11	29.3	38.3	11.5	26.8	37	10.9	26.1
	2	40.5	12.4	28.1	40.7	12.5	28.2	40.5	13.3	27.2
	3	43.5	13.8	29.7	41.6	12	29.6	41.1	12.1	29
Teeth 6	1	38	12.8	25.2	38.8	11.9	26.9	39.9	13	26.9
	2	39.3	12.6	26.7	41.3	13.4	27.9	41.9	13.6	28.3
	3	39	12.8	26.2	39.6	12.5	27.1	40.3	13	27.3
Teeth 7	1	42	9.97	32.03	41	11.8	29.2	42.5	11.1	31.4
	2	49.8	9.44	40.36	49.2	12.8	36.4	48.5	12.6	35.9
	3	52.8	10	42.8	53.3	12.3	41	52.7	12.5	40.2

Negative		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 8	1	52.6	11.5	41.1	53.4	12	41.4	53	13.8	39.2
	2	49.4	10.6	38.8	48.7	11.5	37.2	50.2	12.3	37.9
	3	53.4	13.1	40.3	53.9	11.5	42.4	54.1	14.1	40
Teeth 9	1	52.6	12.5	40.1	53.4	12.1	41.3	53	12.1	40.9
	2	53.4	9.35	44.05	53.9	8.57	45.33	54.1	9.8	44.3
	3	49.4	10.4	39	48.7	9.59	39.11	50.2	8.8	41.4
Teeth 10	1	46	12	34	44.8	13	31.8	44.6	13	31.6
	2	48.1	11.8	36.3	48.8	12.3	36.5	48.3	12.8	35.5
	3	48.5	12.1	36.4	49	12.5	36.5	50.3	12.6	37.7
Teeth 11	1	35.9	14	21.9	43.5	13.8	29.7	40.5	15.4	25.1
	2	36.9	13.5	23.4	41.6	15	26.6	40.7	15.5	25.2
	3	39.7	13.9	25.8	41.1	15.1	26	40.5	16.3	24.2
Teeth 12	1	39.4	3.46	35.94	38.2	3.48	34.72	40.2	3.49	36.71
	2	39	3.48	35.52	38.6	4.61	33.99	39.7	4.62	35.08
	3	38	3.18	34.82	38.4	3.86	34.54	40.1	3.87	36.23
Teeth 13	1	41	14.5	26.5	41.5	15.2	26.3	41.2	17.1	24.1
	2	41.3	12.8	28.5	41.5	16.1	25.4	40.2	14.3	25.9
	3	41	12.4	28.6	40.4	15	25.4	41.6	16.3	25.3
Teeth 14	1	39.6	11.6	28	41	14	27	38.1	13	25.1
	2	43.2	12.6	30.6	43.3	14.5	28.8	40.2	12.9	27.3
	3	45.7	12.8	32.9	45.3	12.3	33	40.3	13	27.3
Teeth 15	1	42	11.1	30.9	41	10.1	30.9	40.5	11.7	28.8
	2	49.8	10.8	39	49.2	10	39.2	48.5	11.9	36.6
	3	52.8	10	42.8	53.3	10.9	42.4	50.7	13	37.7

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	38.1	16.2	21.9	40.1	17	23.1	40.3	16.8	23.5
	2	40.2	21	19.2	40.1	20.7	19.4	41.3	21.8	19.5
	3	36	18.6	17.4	35.4	18.6	16.8	35.5	18.8	16.7
Teeth 2	1	39.7	13	26.7	42.4	13.3	29.1	42.7	13.1	29.6
	2	42	15.2	26.8	41.9	15	26.9	40	15.4	24.6
	3	39	13.8	25.2	38.6	14.6	24	40.2	14.2	26
Teeth 3	1	45.2	15.5	29.7	45.9	14.6	31.3	45.3	15.1	30.2
	2	43.8	13.8	30	44.5	13.9	30.6	44.9	13.8	31.1
	3	45	13.5	31.5	45.5	13.5	32	44.8	13.9	30.9
Teeth 4	1	35	17	18	35.3	16.8	18.5	37	16.7	20.3
	2	40.7	18	22.7	40.7	18.4	22.3	40.8	17.9	22.9
	3	42.1	19.5	22.6	42.3	19	23.3	42.7	19.3	23.4
Teeth 5	1	42.3	23	19.3	42.1	23.2	18.9	41.6	22.6	19
	2	45.6	25.1	20.5	45.2	25.3	19.9	45.1	25.3	19.8
	3	44	25.6	18.4	43.6	25.2	18.4	42.2	25.8	16.4
Teeth 6	1	39.3	15.2	24.1	38.2	15.9	22.3	38.4	16.7	21.7
	2	40.6	16.7	23.9	40.9	17.3	23.6	40.3	17	23.3
	3	36.3	17.3	19	36.6	17.2	19.4	37.9	17.1	20.8
Teeth 7	1	51.2	19.6	31.6	50.7	19	31.7	51.5	18.7	32.8
	2	50.4	21.3	29.1	51.4	20.5	30.9	51.8	20.3	31.5
	3	51.8	21.8	30	51.8	22	29.8	52.2	19.5	32.7
Teeth 8	1	56.1	23.8	32.3	57	22.6	34.4	56.8	23	33.8
	2	58.4	24.5	33.9	59.4	25	34.4	60.1	24.9	35.2
	3	60.9	26.9	34	59.7	27	32.7	58.8	24.8	34
Teeth 9	1	56.1	23.8	32.3	57	22.6	34.4	56.8	23	33.8
	2	60.9	26.9	34	59.7	27	32.7	58.8	24.8	34
	3	58.4	24.5	33.9	59.4	25	34.4	60.1	24.9	35.2

Positive		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 10	1	50.4	19.6	30.8	50	21.8	28.2	50.5	21.5	29
	2	44.1	19	25.1	47.2	19.5	27.7	47.3	20.5	26.8
	3	51.8	18.7	33.1	49.8	22	27.8	50.9	20.3	30.6
Teeth 11	1	23.2	23	0.2	44	25.6	18.4	45.6	25.1	20.5
	2	42.1	23.2	18.9	43.6	25.2	18.4	45.2	25.3	19.9
	3	41.6	22.6	19	42.2	25.8	16.4	45.1	25.9	19.2
Teeth 12	1	39.6	13	26.6	42.4	13.3	29.1	42.7	13.1	29.6
	2	39	13.8	25.2	38.6	14.6	24	40.2	14.2	26
	3	42	15.3	26.7	41.9	15	26.9	40	15.4	24.6
Teeth 13	1	35	17	18	35.3	16.8	18.5	37	16.7	20.3
	2	40.7	18	22.7	40.7	18.4	22.3	40.8	17.9	22.9
	3	42.1	19.5	22.6	42.3	19	23.3	42.7	18	24.7
Teeth 14	1	40.1	16.7	23.4	40.3	17	23.3	39.4	16.8	22.6
	2	40.1	21	19.1	41.3	20.7	20.6	42.4	21.8	20.6
	3	35.4	18.6	16.8	35.5	18.6	16.9	40.7	18.9	21.8
Teeth 15	1	51.2	12.8	38.4	50.7	13	37.7	51.5	14.4	37.1
	2	50.4	15.2	35.2	51.4	16	35.4	51.8	15.3	36.5
	3	51.8	13.2	38.6	51.8	13.2	38.6	52.2	19.5	32.7

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	39.2	14	25.2	40.4	13.3	27.1	39.4	12.4	27
	2	42.4	15.8	26.6	42.8	13.7	29.1	42.5	13.2	29.3
	3	40.7	16	24.7	40.9	13.2	27.7	40.8	15.3	25.5
Teeth 2	1	33.6	12.8	20.8	33.1	13.6	19.5	34.2	13.5	20.7
	2	35.1	15.8	19.3	36	13.6	22.4	35.5	13.7	21.8
	3	41.1	16.7	24.4	40.8	14.2	26.6	42	14.1	27.9
Teeth 3	1	37.1	13.6	23.5	37.9	12.8	25.1	38.4	11.4	27
	2	38.9	14.7	24.2	39.2	13.9	25.3	39	13.9	25.1
	3	36.8	11.5	25.3	36.3	11.3	25	36.9	10.9	26
Teeth 4	1	40	13.8	26.2	37.2	12.5	24.7	37.5	12.6	24.9
	2	41.6	14.3	27.3	41	13.8	27.2	41.7	14.1	27.6
	3	47.2	16.3	30.9	45.9	13.5	32.4	47	12.8	34.2
Teeth 5	1	45.7	15.8	29.9	46.1	18	28.1	46.5	19.5	27
	2	44.2	23.2	21	45.5	17.5	28	44.8	17.1	27.7
	3	46.5	21	25.5	46.9	18.3	28.6	46.8	18.7	28.1
Teeth 6	1	38.5	13.5	25	38.7	13.1	25.6	38.3	11.9	26.4
	2	40.3	12.4	27.9	40.6	11.7	28.9	40.2	11.8	28.4
	3	39.1	14.4	24.7	39.3	13.5	25.8	38.9	13.4	25.5
Teeth 7	1	44.4	18.1	26.3	46.5	13.2	33.3	47.2	11.9	35.3
	2	45	16.1	28.9	41.4	12.9	28.5	42.7	13.1	29.6
	3	44.2	15.4	28.8	44.4	15.2	29.2	44.4	13.9	30.5
Teeth 8	1	48.4	12.8	35.6	49	11.4	37.6	48.9	11.5	37.4
	2	47.7	13.9	33.8	49	11.5	37.5	50	11.9	38.1
	3	47.9	13.5	34.4	48.7	11.5	37.2	48.8	11.8	37
Teeth 9	1	45	14	31	43.8	12.1	31.7	44.6	11.7	32.9
	2	44.5	14.7	29.8	49	14.3	34.7	50.3	14.6	35.7
	3	43.1	13.7	29.4	48.8	13.5	35.3	48.3	14	34.3

RMGC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 10	1	45.2	15.2	30	44.7	13.2	31.5	46.8	11.9	34.9
	2	51.4	14.8	36.6	52.6	10	42.6	49.6	10.1	39.5
	3	51.3	13	38.3	50.6	11.7	38.9	52.3	11.8	40.5
Teeth 11	1	45.7	25.8	19.9	47.9	21	26.9	44.2	18	26.2
	2	45.3	23.2	22.1	46.9	18.7	28.2	45.5	17.5	28
	3	46.5	23.5	23	46.8	18.3	28.5	44.8	17.1	27.7
Teeth 12	1	33.6	12.8	20.8	33.1	13.6	19.5	34.2	13.5	20.7
	2	41.1	16.7	24.4	40.8	14.2	26.6	42	14.1	27.9
	3	35.2	13.8	21.4	36	11.8	24.2	35.5	13.7	21.8
Teeth 13	1	37.1	13.5	23.6	37.2	11.1	26.1	37.5	11.8	25.7
	2	40.6	14.1	26.5	41	12.1	28.9	41.7	12.6	29.1
	3	41.2	15.3	25.9	45.9	13.4	32.5	42	13.7	28.3
Teeth 14	1	40.4	14.3	26.1	39.4	13.3	26.1	39.4	12.4	27
	2	42.8	12.5	30.3	42.5	13.7	28.8	41.8	13.1	28.7
	3	40.9	16	24.9	40.9	15	25.9	42.5	13.2	29.3
Teeth 15	1	44.3	14.5	29.8	46.5	15.2	31.3	47.2	10	37.2
	2	41	16	25	41.4	10.9	30.5	40.7	15.1	25.6
	3	44.2	13.5	30.7	44.4	12	32.4	44	11.5	32.5

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 1	1	41	16	25	42.1	14.5	27.6	42	13	29
	2	37.7	15.4	22.3	38	12.4	25.6	37	11.8	25.2
	3	40	15	25	41.6	13.8	27.8	41.1	13.2	27.9
Teeth 2	1	45	16.4	28.6	45.8	15.3	30.5	44.2	14	30.2
	2	42.1	15.5	26.6	43	13.8	29.2	43.8	13.6	30.2
	3	52	12.6	39.4	50.1	14.2	35.9	49.8	12.3	37.5
Teeth 3	1	45.9	15	30.9	44.8	13.4	31.4	46.5	12.5	34
	2	45.6	14.1	31.5	47	13.8	33.2	46.4	11.5	34.9
	3	45.2	13.4	31.8	47.2	13.2	34	46.4	12.9	33.5
Teeth 4	1	35.4	13.5	21.9	37.4	13.1	24.3	37.9	12.8	25.1
	2	34.4	14.2	20.2	35.6	13.8	21.8	38.4	12.6	25.8
	3	35.5	15.3	20.2	35.5	13.5	22	35	13.7	21.3
Teeth 5	1	45.6	20.3	25.3	47.5	15.8	31.7	45.5	15.7	29.8
	2	44.4	17.6	26.8	44.2	15.5	28.7	46.7	15.8	30.9
	3	45.5	20.1	25.4	45.9	15.5	30.4	46.1	15.9	30.2
Teeth 6	1	43	15.2	27.8	44.2	14.9	29.3	43.9	15	28.9
	2	42.9	17.1	25.8	44.6	15.2	29.4	44.8	14.6	30.2
	3	40.3	15.8	24.5	43.3	16.7	26.6	45.1	17.3	27.8
Teeth 7	1	45.2	16	29.2	44.5	10.6	33.9	46.8	10.4	36.4
	2	46.1	15	31.1	45.9	11.3	34.6	48.1	11.5	36.6
	3	45.2	17	28.2	45	10	35	47	9.98	37.02
Teeth 8	1	59.1	18.5	40.6	58.2	15.5	42.7	59.8	15.8	44
	2	56.1	17	39.1	54.2	14.6	39.6	55	14.5	40.5
	3	56	15.6	40.4	60.1	14.9	45.2	58.4	15.5	42.9
Teeth 9	1	49.4	14.5	34.9	50	14	36	50.5	13.8	36.7
	2	48.8	14.7	34.1	49.8	14.5	35.3	50.9	13.6	37.3
	3	44.1	14.6	29.5	47.2	14.5	32.7	48.3	13.3	35

PMRC		VHN AT 100 μm			VHN AT 200 μm			VHN AT 300 μm		
		Before	After	Delta	Before	After	Delta	Before	After	Delta
Teeth 10	1	46.7	11.3	35.4	45.8	10.8	35	49	11	38
	2	49.7	12.8	36.9	50.3	12	38.3	51.3	11.5	39.8
	3	51.4	16	35.4	54.3	15.5	38.8	53.1	15.3	37.8
Teeth 11	1	47.5	20.3	27.2	45.9	15.8	30.1	45.4	15.7	29.7
	2	45.5	20.1	25.4	45.9	15.1	30.8	44.2	17	27.2
	3	46.5	17.6	28.9	46.1	15	31.1	43.7	15.8	27.9
Teeth 12	1	45	16.4	28.6	52	12.6	39.4	42.1	14	28.1
	2	45.8	15.1	30.7	50.1	13.2	36.9	43	12.3	30.7
	3	44.2	13.5	30.7	49.8	13.5	36.3	43.8	13.6	30.2
Teeth 13	1	37.4	16.3	21.1	37.4	12.5	24.9	37.9	12.8	25.1
	2	34.5	15.3	19.2	38.6	13.6	25	33.4	11.4	22
	3	37.5	14.4	23.1	34	12.6	21.4	34	12	22
Teeth 14	1	41	16.2	24.8	42.1	13.5	28.6	42	13	29
	2	40	14.9	25.1	41.6	12.4	29.2	41.1	11.8	29.3
	3	37.7	13.4	24.3	38	13.8	24.2	37	12.1	24.9
Teeth 15	1	45.3	15.2	30.1	45	13.2	31.8	46.8	11.9	34.9
	2	46.1	14	32.1	45.9	13.7	32.2	46.1	11.8	34.3
	3	45.2	13.8	31.4	46	13	33	47	10.1	36.9

Descriptive of the mean delta of dentin after soaking in the demineralization solution 72 hours among four groups studied

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Negative	135	32.1096	5.6972	.4903	21.90	45.33
Positive	135	25.9644	6.5135	.5606	.20	38.60
RMGC	135	28.4644	4.8608	.4184	19.30	42.60
PMRC	135	30.7001	5.6345	.4849	19.20	45.20
Total	540	29.3097	6.1492	.2646	.20	45.33

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2926.549	3	975.516	29.956	.000
Within Groups	17454.799	536	32.565		
Total	20381.348	539			

Multiple Comparisons

		Mean Difference (I-J)	Std. Error	Sig.
(I) 1=Negative, 2=Positive,3-RMGC, 4=PMRC	(J) 1=Negative, 2=Positive,3-RMGC, 4=PMRC			
Negative	Positive	6.1452	0.6946	.000
	RMGC	3.6452	0.6946	.000
	PMRC	1.4095	0.6946	0.258
Positive	Negative	-6.1452	0.6946	.000
	RMGC	-2.5	0.6946	0.002
	PMRC	-4.7357	0.6946	.000
RMGC	Negative	-3.6452	0.6946	.000
	Positive	2.5	0.6946	0.002
	PMRC	-2.2357	0.6946	0.008
PMRC	Negative	-1.4095	0.6946	0.258
	Positive	4.7357	0.6946	.000
	RMGC	2.2357	0.6946	0.008

The mean difference is significant at the .05 level.

Descriptive of Negative group as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	45	32.2849	6.0432	.9009	21.90	44.05
200 microns	45	32.3831	5.5304	.8244	25.20	45.33
300 microns	45	31.6609	5.6063	.8357	24.10	44.30
Total	135	32.1096	5.6972	.4903	21.90	45.33

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.809	2	6.905	0.21	0.811
Within Groups	4335.578	132	32.845		
Total	4349.388	134			

Descriptive of Positive group as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	45	25.5200	7.2571	1.0818	.20	38.60
200 microns	45	25.9711	6.3575	.9477	16.40	38.60
300 microns	45	26.4022	5.9769	.8910	16.40	37.10
Total	135	25.9644	6.5135	.5606	.20	38.60

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.515	2	8.758	0.204	0.816
Within Groups	5667.534	132	42.936		
Total	5685.049	134			

Descriptive of resin modified RMGC at the difference level

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	45	26.8822	4.4483	.6631	19.30	38.30
200 microns	45	29.1444	4.8360	.7209	19.50	42.60
300 microns	45	29.3667	4.9918	.7441	20.70	40.50
Total	135	28.4644	4.8608	.4184	19.30	42.60

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	170.092	2	85.046	3.747	0.026
Within Groups	2996.017	132	22.697		
Total	3166.109	134			

Multiple Comparisons of resin modified glass ionomer cement

		Mean Difference (I-J)	Std. Error	Sig.
(I)1=100 micron, 2=200, 3=300	(J)1=100 micron, 2=200, 3=300			
100	200	-2.2622	1.0044	0.078
	300	-2.4844	1.0044	0.044
200	100	2.2622	1.0044	0.078
	300	-0.2222	1.0044	1.000
300	100	2.4844	1.0044	0.044
	200	0.2222	1.0044	1.000

The mean difference is significant at the .05 level.

Descriptive of polyacid modified resin composite as a function of distance

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
100 microns	45	28.8111	5.5180	.8226	19.20	40.60
200 microns	45	31.5867	5.4478	.8121	21.40	45.20
300 microns	45	31.7027	5.5749	.8311	21.30	44.00
Total	135	30.7001	5.6345	.4849	19.20	45.20

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	241.174	2	120.587	3.966	.021
Within Groups	4013.079	132	30.402		
Total	4254.252	134			

Multiple Comparisons

		Mean Difference (I-J)	Std. Error	Sig.
(I)1=100 micron, 2=200, 3=300	(J)1=100 micron, 2=200, 3=300			
100	200	-2.7756	1.1624	0.055
	300	-2.8916	1.1624	0.042
200	100	2.7756	1.1624	0.055
	300	-0.116	1.1624	1
300	100	2.8916	1.1624	0.042
	200	0.116	1.1624	1

The mean difference is significant at the .05 level.

APPENDIX 5.1

Maximum penetration depth (nm) of enamel in series 5 columns x 8 rows

Negative	Column				
Row	1	2	3	4	5
1	990.86	991.19	979.79	983.93	1012.07
2	.	990.45	993.42	987.91	985.68
3	1007.88	964.90	989.21	974.08	994.74
4	993.14	983.65	991.44	971.72	974.61
5	996.55	997.53	977.84	979.92	966.47
6	990.91	975.12	990.29	977.38	932.93
7	986.76	977.40	995.01	960.35	1005.74
8	1003.38	987.46	971.34	992.13	976.27
1	925.09	917.29	924.69	912.98	962.20
2	863.01	895.51	874.67	877.67	902.16
3	882.84	882.54	903.01	871.31	873.73
4	894.97	867.90	900.94	869.02	876.85
5	898.04	891.94	890.40	870.19	865.90
6	862.12	878.09	869.84	871.29	883.21
7	871.52	865.91	894.54	887.46	878.89
8	891.26	905.66	886.61	891.54	898.18
1	995.75	933.27	990.66	955.72	948.39
2	.	936.14	970.45	932.28	944.69
3	957.86	932.26	935.29	935.04	941.85
4	963.01	924.14	926.73	953.23	939.96
5	963.84	931.47	992.81	920.60	940.02
6	945.51	920.19	938.02	912.98	928.62
7	969.52	961.20	941.07	923.85	953.68
8	942.95	981.68	923.87	913.48	914.88

Negative	Column				
Row	1	2	3	4	5
1	.	980.72	940.43	940.73	970.76
2	987.98	946.60	948.13	983.01	941.14
3	990.59	979.63	979.00	950.65	987.23
4	992.98	965.64	958.56	946.95	981.06
5	975.81	964.66	930.12	944.24	968.59
6	986.45	972.56	949.43	983.08	985.81
7	993.89	984.43	956.25	953.14	934.61
8	999.78	952.37	964.79	920.66	938.18
1	1013.63	996.76	983.44	990.92	967.05
2	969.23	936.23	961.18	943.05	972.91
3	944.07	930.54	944.56	960.24	962.95
4	940.53	954.63	922.86	928.01	950.74
5	953.58	933.60	930.31	943.70	976.49
6	934.89	959.79	980.80	961.11	932.05
7	944.74	960.48	937.36	958.81	949.51
8	939.45	930.48	938.65	932.22	965.10
1	956.97	894.01	956.06	925.61	965.76
2	995.13	971.72	926.39	983.75	918.48
3	937.40	945.08	1091.15	983.75	925.48
4	967.39	773.72	939.15	992.34	1093.95
5	933.65	945.03	938.62	947.41	943.74
6	928.79	913.54	929.42	928.41	951.25
7	922.61	937.13	930.09	937.62	927.44
8	943.61	930.10	929.81	937.97	964.42

Negative	Column				
Row	1	2	3	4	5
1	935.21	917.29	902.20	982.43	916.96
2	985.22	878.73	906.73	896.41	890.57
3	949.24	878.93	908.91	906.47	951.86
4	935.28	911.66	902.63	871.85	921.95
5	892.83	897.00	907.77	894.60	879.23
6	918.06	891.73	880.45	879.17	917.92
7	920.07	894.72	877.69	907.82	868.09
8	928.45	885.36	881.36	894.36	886.06

Positive	Column				
Row	1	2	3	4	5
1	886.69	903.47	893.26	898.94	891.77
2	862.10	861.21	875.81	924.47	863.75
3	870.82	882.17	861.22	871.23	857.81
4	874.41	900.70	875.49	898.33	876.99
5	882.30	861.97	870.80	881.44	896.98
6	871.00	879.27	872.29	893.78	886.11
7	872.94	883.88	885.92	885.72	876.31
8	886.10	881.69	878.35	881.17	883.38
1	912.25	1001.17	994.20	951.33	981.66
2	914.90	896.45	961.27	921.25	892.90
3	937.45	896.15	898.85	930.60	886.99
4	909.34	899.04	887.34	878.58	959.22
5	947.79	903.56	888.41	888.86	925.14
6	918.66	943.06	917.16	927.84	914.77
7	916.51	899.60	886.38	932.78	910.11
8	905.24	920.30	906.57	897.40	905.03
1	1011.78	927.41	959.84	920.84	974.30
2	935.85	991.93	957.47	981.62	908.15
3	931.99	997.74	955.10	941.86	905.90
4	945.49	930.32	912.34	925.29	929.34
5	967.30	979.25	975.96	948.48	939.36
6	970.17	916.25	972.74	919.15	955.15
7	947.97	936.56	925.75	900.15	927.50
8	988.99	932.46	937.13	963.49	957.63

Positive	Column				
Row	1	2	3	4	5
1	886.39	901.69	875.88	878.58	888.78
2	856.26	883.68	893.33	888.22	836.66
3	875.10	902.37	943.20	926.04	939.96
4	930.29	917.42	929.78	964.39	890.82
5	889.78	903.93	895.57	918.04	910.00
6	888.86	894.91	915.25	952.97	899.99
7	880.14	901.94	883.56	966.74	946.97
8	903.46	907.62	884.40	898.85	942.74
1	954.17	958.43	935.17	889.66	907.20
2	951.87	953.99	879.56	905.88	993.76
3	899.98	857.88	846.49	859.73	936.28
4	850.19	872.44	874.75	904.46	925.47
5	877.79	890.99	888.88	860.65	859.12
6	882.11	874.59	890.41	862.16	857.74
7	857.12	887.99	869.80	868.21	885.77
8	923.37	855.27	923.61	886.52	861.71
1	891.77	863.75	857.81	876.99	896.98
2	898.94	893.26	903.47	886.69	862.10
3	870.82	882.17	871.23	861.22	874.41
4	900.70	875.49	882.30	871.00	886.10
5	881.69	883.88	879.27	872.29	885.92
6	870.88	934.98	886.72	881.17	898.33
7	916.10	883.38	879.14	897.85	849.09
8	896.46	853.93	879.86	909.59	886.73

Positive	Column				
Row	1	2	3	4	5
1	990.31	991.29	980.17	961.13	983.28
2	960.68	957.39	944.65	.	926.95
3	.	931.87	965.76	947.22	962.59
4	978.38	930.54	937.60	930.59	973.44
5	914.48	929.30	924.26	926.73	935.84
6	930.92	916.18	898.55	918.82	876.19
7	905.82	920.93	919.65	912.29	899.44
8	896.46	895.66	902.39	920.91	897.89

RMGC	Column				
Row	1	2	3	4	5
1	955.87	963.27	960.26	919.88	905.07
2	949.35	974.01	910.98	939.29	919.45
3	935.92	924.10	901.57	906.81	903.04
4	916.36	907.56	904.76	915.64	910.86
5	978.71	949.03	962.21	928.43	913.07
6	947.04	931.43	953.20	937.28	912.92
7	975.94	956.66	986.57	966.80	932.69
8	970.81	958.44	958.09	920.20	929.76
1	933.12	916.22	1002.34	947.61	915.62
2	949.62	941.07	933.67	923.40	915.02
3	976.82	990.78	937.54	966.06	934.69
4	920.38	918.49	931.66	915.22	928.84
5	985.69	953.50	930.38	943.84	923.70
6	952.13	926.42	928.46	912.66	930.91
7	925.09	933.80	913.85	934.73	919.59
8	925.45	928.38	935.93	933.26	972.84
1	924.40	901.60	899.86	924.08	922.36
2	938.80	955.26	893.69	897.95	889.28
3	937.28	912.00	909.47	909.90	901.91
4	911.94	901.69	904.26	894.22	911.93
5	925.95	902.98	890.82	889.72	894.94
6	922.55	922.64	916.91	910.22	912.53
7	980.37	904.47	897.95	907.23	909.88
8	939.03	924.43	920.48	912.11	923.44

RMGC	Column				
Row	1	2	3	4	5
1	971.78	886.91	882.39	864.03	855.57
2	885.75	871.77	859.20	870.12	907.48
3	891.78	855.18	888.81	848.17	861.73
4	869.10	865.53	852.36	884.93	831.83
5	874.22	918.31	886.24	869.91	854.48
6	881.71	874.02	877.50	866.10	875.13
7	892.33	883.35	893.95	865.77	875.25
8	898.82	884.89	891.33	874.23	896.97
1	895.88	938.09	911.93	980.45	885.21
2	904.66	918.84	986.37	892.10	893.33
3	884.72	928.49	882.83	874.05	879.36
4	949.05	908.40	900.75	876.50	911.15
5	880.75	880.85	915.52	888.55	885.14
6	926.64	922.57	900.90	878.14	894.35
7	892.79	879.78	915.64	896.84	950.68
8	896.69	891.33	909.57	900.92	941.22
1	916.05	917.65	890.64	899.86	948.37
2	916.42	877.28	901.33	894.18	904.16
3	907.36	904.97	901.67	935.70	919.42
4	903.39	920.74	918.56	907.84	900.12
5	912.18	915.59	929.29	973.94	980.85
6	926.31	920.45	906.40	916.53	917.08
7	928.91	937.34	933.61	903.00	920.61
8	926.00	915.01	936.75	924.91	956.70

RMGC	Column				
Row	1	2	3	4	5
1	988.10	938.16	991.85	956.62	986.06
2	981.22	957.59	962.86	960.59	.
3	949.26	997.89	957.78	962.90	900.26
4	919.93	961.04	950.13	993.72	.
5	947.68	932.67	977.23	993.60	1007.64
6	956.13	973.20	965.86	972.30	998.77
7	975.25	991.85	977.48	970.23	.
8	936.00	915.01	936.75	924.91	956.70

PMRC	Column				
Row	1	2	3	4	5
1	990.30	991.29	980.17	961.13	983.28
2	960.68	957.39	944.65	1004.31	916.95
3	1047.58	931.87	1011.96	937.22	962.59
4	978.38	909.59	873.44	937.60	930.54
5	926.67	886.73	924.26	929.30	894.48
6	935.84	972.00	904.17	919.96	897.39
7	930.92	889.55	876.18	920.91	879.86
8	916.18	918.82	896.46	895.23	902.39
1	985.69	976.08	977.97	943.22	962.44
2	961.23	975.17	961.79	995.35	954.21
3	964.18	980.93	995.61	975.82	968.60
4	955.40	951.00	1001.86	960.20	990.80
5	985.40	994.04	975.92	992.48	1011.67
6	1007.45	1066.34	1005.88	978.45	992.34
7	996.32	1007.76	978.44	1108.41	1026.48
8	997.88	997.70	974.19	997.44	989.65
1	1013.63	916.76	912.44	890.92	934.05
2	929.23	916.23	961.18	904.05	937.91
3	944.07	930.54	944.56	906.24	913.95
4	940.53	914.63	922.86	928.01	950.74
5	952.58	933.60	930.31	943.70	974.49
6	934.89	959.79	920.80	961.11	932.05
7	944.74	960.48	937.36	958.81	949.51
8	936.45	930.48	928.65	932.22	965.10

PMRC	Column				
Row	1	2	3	4	5
1	900.67	866.81	883.51	884.47	875.85
2	919.70	936.58	910.82	982.23	988.95
3	899.34	903.08	908.68	901.91	895.36
4	962.88	908.49	883.62	889.58	908.90
5	931.15	901.61	865.74	894.57	900.77
6	890.01	835.98	891.16	882.79	886.54
7	913.98	899.65	913.91	884.75	897.20
8	889.79	909.13	900.24	895.53	926.81
1	995.06	998.60	1026.85	1106.83	1084.94
2	965.07	938.22	941.23	999.34	952.84
3	924.31	918.11	1017.45	930.22	948.32
4	865.59	900.48	872.68	947.65	887.86
5	884.61	907.59	864.28	884.33	891.56
6	842.63	865.12	873.92	861.39	874.58
7	914.83	891.83	880.13	896.61	906.81
8	902.10	893.47	897.13	888.94	866.44
1	971.78	886.91	882.39	864.03	855.57
2	885.75	871.77	859.20	870.12	907.48
3	891.78	855.18	888.81	848.17	861.73
4	869.10	865.53	852.36	884.93	831.83
5	874.22	918.31	886.24	869.91	854.48
6	881.71	874.02	877.50	866.10	875.13
7	892.33	883.35	893.95	865.77	875.25
8	898.82	884.89	891.33	874.23	896.97

PMRC	Column				
Row	1	2	3	4	5
1	956.97	894.01	956.06	925.61	965.76
2	918.48	983.75	926.39	971.72	995.13
3	925.48	983.75	991.15	945.08	937.40
4	993.95	992.34	939.15	973.72	967.39
5	943.74	947.41	938.62	945.03	933.65
6	951.25	928.41	929.42	913.54	928.79
7	927.44	937.62	930.09	937.13	922.61
8	994.42	937.97	929.81	930.10	943.61

Descriptive mean of maximum penetration depth among four groups studied

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
negative	277	940.98853	40.79345	2.45104	773.716	1093.949
positive	278	908.85179	35.61397	2.13598	836.663	1011.776
RMGC	277	921.78630	33.78527	2.02996	831.826	1007.638
F2000	280	930.41108	47.46240	2.83642	831.826	1108.409
Total	1112	925.50767	41.44378	1.24282	773.716	1108.409

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	154075.546	3	51358.515	32.440	.000
Within Groups	1754163.864	1108	1583.180		
Total	1908239.410	1111			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	negative	positive	32.13674	3.37792	.000
		RMGC	19.20223	3.38096	.000
		PMRC	10.57745	3.37189	.011
	positive	negative	-32.1367	3.37792	.000
		RMGC	-12.9345	3.37792	.001
		PMRC	-21.5593	3.36884	.000
	RMGC	negative	-19.2022	3.38096	.000
		positive	12.93451	3.37792	0.001
		PMRC	-8.62478	3.37189	0.064
	PMRC	negative	-10.5775	3.37189	0.011
		positive	21.55929	3.36884	.000
		RMGC	8.62478	3.37189	0.064

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the surface of negative group (8 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	34	957.67085	32.94659	5.65029	894.013	1013.634
2	33	942.32124	40.56166	7.06088	863.005	995.126
3	35	947.26491	44.57117	7.53390	871.312	1091.151
4	35	939.51940	53.36472	9.02028	773.716	1093.949
5	35	936.69969	36.80005	6.22034	865.904	997.531
6	35	933.17720	39.04121	6.59917	862.117	990.913
7	35	936.26874	38.62171	6.52826	865.912	1005.735
8	35	935.53903	35.27147	5.96197	881.358	1003.384
Total	277	940.98853	40.79345	2.45104	773.716	1093.949

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15573.564	7	2224.795	1.349	0.227
Within Groups	443719.577	269	1649.515		
Total	459293.141	276			

Descriptive maximum penetration from the interface of negative group (5 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	53	951.21309	39.51897	5.42835	862.117	1013.634
2	56	934.06682	43.19050	5.77157	773.716	997.531
3	56	940.82582	40.83254	5.45648	869.844	1091.151
4	56	936.36634	37.46798	5.00687	869.019	992.336
5	56	943.01834	41.97809	5.60956	865.904	1093.949
Total	277	940.98853	40.79345	2.45104	773.716	1093.949

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9652.304	4	2413.076	1.46	0.215
Within Groups	449640.838	272	1653.091		
Total	459293.141	276			

Descriptive maximum penetration from the surface of positive group (8 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	35	927.9529	45.59592	7.70712	857.808	1011.78
2	34	912.5425	41.53751	7.12362	836.663	993.759
3	34	905.3002	39.01624	6.69123	846.489	997.735
4	35	909.3811	32.18392	5.44008	850.187	978.379
5	35	905.3141	32.43691	5.48284	859.124	979.252
6	35	905.4032	30.11566	5.09048	857.737	972.735
7	35	900.5714	26.92628	4.55137	849.092	966.742
8	35	904.3529	29.38837	4.96754	853.932	988.993
Total	278	908.8518	35.61397	2.13598	836.663	1011.78

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17634.051	7	2519.150	2.038	.051
Within Groups	333700.252	270	1235.927		
Total	351334.302	277			

Descriptive maximum penetration from the interface of positive group (5 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	55	910.5332	37.9038	5.11095	850.187	1011.78
2	56	909.548	36.70051	4.90431	853.932	1001.17
3	56	907.002	35.5233	4.747	846.489	994.195
4	55	908.5485	31.2828	4.21817	859.73	981.616
5	56	908.6519	37.42632	5.0013	836.663	993.759
Total	278	908.8518	35.61397	2.13598	836.663	1011.78

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	381.568	4	95.392	0.074	0.99
Within Groups	350952.735	273	1285.541		
Total	351334.302	277			

Descriptive maximum penetration from the surface of resin modified GIC group (8 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	35	928.48969	37.28052	6.30156	855.573	1002.337
2	34	919.88471	33.58282	5.75941	859.201	986.370
3	35	916.57731	36.37400	6.14833	848.167	997.888
4	34	909.37850	29.94382	5.13532	831.826	993.723
5	35	925.64503	39.60918	6.69517	854.475	1007.638
6	35	921.92411	30.78922	5.20433	866.101	998.765
7	34	927.36059	35.24962	6.04526	865.768	991.852
8	35	924.78089	24.03708	4.06301	874.230	972.842
Total	277	921.78630	33.78527	2.02996	831.826	1007.638

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9771.920	7	1395.989	1.230	.286
Within Groups	305266.833	270	1134.821		
Within Groups	305266.833	270	1134.821		
Total	315038.753	276			
Total	315038.753	276			

Descriptive maximum penetration from the interface of resin modified GIC group (5 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	56	929.74036	31.49362	4.20851	869.103	988.100
2	56	922.91007	32.35773	4.32398	855.182	997.888
3	56	922.82759	34.03200	4.54772	852.361	1002.337
4	56	917.46693	35.52494	4.74722	848.167	993.723
5	53	915.65826	34.82938	4.78418	831.826	1007.638
Total	277	921.78630	33.78527	2.02996	831.826	1007.638

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6709.483	4	1677.371	1.48	0.209
Within Groups	308329.3	272	1133.563		
Total	315038.8	276			

Descriptive maximum penetration from the surface of polyacid modified resin composite group (8 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	35	948.63014	60.56629	10.23757	855.573	1106.833
2	35	943.00169	38.11989	6.44344	859.201	1004.311
3	35	936.88617	46.08117	7.78914	848.167	1047.581
4	35	924.10274	45.23932	7.64684	831.826	1001.860
5	35	922.66894	40.80646	6.89755	854.475	1011.671
6	35	917.66886	51.94153	8.77972	835.980	1066.338
7	35	926.60003	50.18798	8.48332	865.768	1108.409
8	35	923.73009	37.85604	6.39884	866.438	997.877
Total	280	930.41108	47.46240	2.83642	831.826	1108.409

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29877.55	7	4268.221	1.939	0.064
Within Groups	598620.1	272	2200.809		
Total	628497.7	279			

Descriptive maximum penetration from the interface of polyacid modified resin composite group (5 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	56	937.77005	43.26302	5.78126	842.626	1047.581
2	56	928.37005	46.02523	6.15038	835.980	1066.338
3	56	925.80246	45.41961	6.06945	852.361	1026.851
4	56	930.32802	53.73377	7.18048	848.167	1108.409
5	56	929.78482	49.04638	6.55410	831.826	1084.941
Total	280	930.41108	47.46240	2.83642	831.826	1108.409

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4477.688	4	1119.422	0.493	0.741
Within Groups	624020	275	2269.164		
Total	628497.7	279			

APPENDIX 5.2

Maximum penetration depth of dentin (nm) in series 5 column x 8 rows

Negative	Column				
Row	1	2	3	4	5
1	1112.46	1102.95	1097.78	1079.46	1084.62
2	1077.05	1044.10	1082.21	1044.48	1035.44
3	1061.24	1038.69	1029.82	1066.94	1059.44
4	1071.74	1021.47	1037.90	1061.35	997.34
5	1059.18	1042.15	1019.98	1028.87	1027.04
6	1067.17	1046.47	1015.35	1010.96	999.02
7	1050.07	1013.88	1007.58	996.12	1005.13
8	1006.65	991.02	1017.06	1029.46	1012.19
1	1276.99	1236.96	1293.74	1301.18	1299.85
2	1189.87	1196.87	1181.17	1103.63	1170.52
3	1208.39	1197.99	1227.77	1223.89	1239.25
4	1176.56	1222.89	1171.61	1193.08	1215.35
5	1295.38	1262.27	1221.90	1229.96	1188.72
6	1239.49	1199.46	1193.05	1242.72	1192.18
7	1286.52	1197.34	1212.75	1140.93	1218.77
8	1158.54	1156.76	1161.80	1184.16	1169.82
1	1040.43	1125.83	1299.64	1116.58	1159.45
2	1258.89	1294.31	1258.00	1263.10	1293.31
3	1269.15	1219.54	1233.00	1155.05	1194.45
4	1141.44	1099.82	1143.20	1154.57	1156.28
5	1135.95	1110.34	1075.65	1096.55	1095.03
6	1087.76	1127.49	1143.27	1099.35	1178.40
7	1112.53	1097.59	1084.08	1070.45	1111.09
8	1129.21	1088.92	1101.59	1074.38	1073.60

Negative	Column				
Row	1	2	3	4	5
1	1003.99	1043.09	1010.40	1031.15	1021.25
2	1061.66	1054.65	1045.74	1093.25	1060.09
3	1046.10	1076.38	1005.76	1064.22	1047.74
4	1064.24	1040.86	1036.13	1054.14	1001.44
5	1036.09	1047.09	1041.54	1032.70	1008.84
6	1056.08	1036.33	1077.58	1006.51	1006.80
7	1036.51	1031.15	1009.70	1028.75	1015.27
8	1023.88	1041.81	1107.60	1018.94	1008.79
1	1031.97	1013.07	1063.65	1045.37	1054.41
2	1110.65	1030.75	1043.02	1058.92	1036.81
3	1113.17	1110.47	1127.90	1175.80	1192.16
4	1103.04	1129.97	1177.02	1141.00	1146.85
5	1127.88	1131.78	1104.75	1115.38	1095.30
6	1178.42	1207.70	1242.77	1217.98	1229.73
7	1203.25	1225.46	1220.38	1219.68	1232.84
8	1287.61	1258.91	1294.45	1275.26	1225.01
1	1077.95	1044.15	1044.12	1046.19	1091.61
2	1049.37	1092.37	1053.74	1064.90	1086.10
3	1006.52	1023.34	1041.65	1060.46	1072.67
4	1019.42	1041.05	.	1081.11	1029.04
5	1019.78	1096.94	1011.64	1042.30	1040.54
6	1074.76	1038.39	1018.21	1013.48	1010.04
7	1111.51	1054.27	1073.80	1011.52	1019.40
8	1046.35	1019.07	1021.56	1019.51	1060.54

Negative	Column				
Row	1	2	3	4	5
1	1089.61	1046.91	1056.77	998.44	1061.91
2	1043.82	1046.02	1029.39	1031.98	1054.65
3	1043.82	1046.02	1029.39	1031.98	1054.65
4	1011.85	996.77	1022.84	1077.77	1045.88
5	1026.81	1002.07	1002.79	1018.42	1053.82
6	1038.81	1058.92	1034.02	1030.75	1110.65
7	1028.46	1017.91	1056.34	1055.84	1054.41
8	1031.97	1013.07	1063.64	1043.96	1046.37

Positive	Column				
Row	1	2	3	4	5
1	1057.29	1055.62	1079.66	1005.36	1003.11
2	1021.58	1094.96	995.80	957.30	971.56
3	1169.78	1092.91	999.75	999.47	984.34
4	1028.41	1006.96	975.03	977.29	1004.84
5	977.56	980.10	995.63	1021.55	1062.56
6	1001.71	971.38	986.20	1062.60	1045.18
7	933.32	992.91	1040.36	1020.00	1022.70
8	1011.40	1034.59	1067.37	998.75	1016.56
1	1037.90	1057.89	1026.27	1015.45	1047.82
2	1009.23	978.85	1027.32	1033.52	1013.16
3	1002.98	953.93	995.81	1012.18	978.94
4	962.13	944.75	1016.97	1011.33	1043.77
5	1000.65	987.51	996.41	1019.41	994.51
6	951.77	985.52	1036.36	975.31	973.30
7	1016.06	996.34	997.75	982.05	1051.89
8	1034.36	1012.22	1047.34	949.53	941.49
1	1054.41	1052.94	1015.27	1077.53	1051.36
2	1083.49	1086.66	1009.19	1044.92	1088.04
3	1025.89	1049.99	1049.16	1017.02	1047.62
4	1061.40	1043.84	1027.95	1032.83	1020.20
5	1038.61	1007.71	1054.99	1020.39	1025.33
6	977.32	1027.48	985.22	1037.67	1069.75
7	975.85	988.99	1002.44	991.53	1024.79
8	1003.36	986.85	972.13	965.44	1028.71

Positive	Column				
Row	1.00	2.00	3.00	4.00	5.00
1	1077.95	1044.15	1044.12	1046.19	1091.61
2	1049.37	1092.37	1053.74	1064.90	1086.10
3	1006.52	1023.34	1041.65	1060.46	1072.67
4	1019.42	1041.05	980.21	1081.11	1029.04
5	1019.78	1096.94	1011.64	1042.30	1040.54
6	1074.76	1038.39	1018.21	1013.48	1010.04
7	1111.51	1054.27	973.80	1011.52	950.40
8	1046.35	1019.07	1021.56	1019.51	1060.54
1	1104.38	1100.97	1111.07	1161.46	1152.74
2	1101.24	1097.07	1114.45	1102.11	1045.91
3	1083.75	1092.59	1098.04	1139.49	1154.60
4	1092.79	1091.16	1106.79	1087.02	1102.74
5	1093.20	1090.93	1186.37	1095.37	1095.97
6	1136.94	1101.74	1071.41	1090.59	1077.58
7	1118.94	1105.59	1034.70	1050.66	1054.17
8	1070.26	1049.53	1102.34	1054.90	1032.89
1	1003.36	986.85	972.13	965.44	1028.71
2	1024.79	991.53	1002.44	998.99	975.85
3	977.32	1024.48	980.30	1021.87	1069.75
4	1038.60	1007.71	1052.99	1020.39	1025.33
5	1020.20	1022.83	1027.95	1043.84	1061.40
6	1047.64	1012.09	1041.14	1049.99	1025.89
7	1023.04	1014.10	1009.19	1026.66	1026.49
8	1051.36	1067.54	1015.27	1052.94	1054.41

Positive	Column				
Row	1.00	2.00	3.00	4.00	5.00
1	941.49	949.53	1011.34	1012.22	1034.36
2	1016.06	996.34	997.76	982.05	1015.85
3	973.30	975.31	1012.36	985.53	951.77
4	1000.65	978.51	996.41	1019.42	994.51
5	1023.77	1011.24	1016.98	954.75	962.13
6	1002.98	960.93	995.81	1011.19	978.94
7	1013.16	1033.52	1027.32	978.85	1009.23
8	1016.90	1032.89	1016.27	1015.45	1047.82

RMGC	Column				
Row	1	2	3	4	5
1	979.69	1002.61	991.25	1009.51	1002.36
2	991.48	1040.00	1025.40	1015.33	1009.23
3	1046.22	1058.84	1023.60	1040.14	1053.10
4	1041.02	1017.38	999.91	1032.80	1047.54
5	1089.58	1018.68	987.69	1018.57	1008.22
6	1084.37	1070.58	1040.98	1072.96	1092.57
7	1069.35	1024.64	1042.65	1039.68	1057.76
8	1037.91	1020.18	1012.02	987.36	1065.49
1	991.31	1019.16	1025.24	1089.58	1024.43
2	996.57	1034.20	968.77	957.25	984.04
3	1032.13	1049.01	971.22	990.19	.
4	1025.68	990.19	1028.79	1014.66	1049.46
5	1049.33	1037.73	1011.27	1065.19	1025.41
6	1025.10	1072.76	973.54	1009.99	1073.74
7	1093.31	997.26	983.75	1010.65	1022.46
8	1009.30	1010.95	.	1025.44	1093.83
1	1101.35	1054.71	1289.97	1094.23	1123.94
2	1064.96	1057.51	1103.04	1091.40	1039.65
3	1055.84	1060.49	1074.88	1065.69	1025.73
4	1036.45	1092.83	1066.44	1011.69	1044.62
5	.	1053.90	1074.57	1061.99	1047.27
6	998.07	1015.98	1065.39	1036.90	1043.17
7	1093.41	1056.20	1054.46	1066.75	1079.36
8	1051.64	1025.90	1053.60	1056.96	1054.20

RMGC	Column				
Row	1	2	3	4	5
1	1103.18	1042.40	1066.41	1134.55	1054.87
2	1085.85	1058.77	1071.43	1057.44	1047.55
3	1057.26	1043.91	1070.71	1068.70	1035.11
4	1076.26	1070.53	1093.21	1173.75	1105.84
5	1094.61	1076.78	1087.48	1094.72	1116.39
6	1067.50	1057.31	1099.90	1111.21	1080.54
7	1150.63	1060.24	1059.50	1158.45	1076.01
8	1084.40	1039.85	1110.66	1061.13	1054.99
1	1053.02	1088.01	1048.83	1021.79	995.92
2	1026.56	1078.49	1067.50	1029.82	990.54
3	985.98	1071.01	1059.23	1024.22	1081.36
4	996.35	1007.07	1014.86	1058.09	1014.59
5	1004.14	1050.05	1025.87	1022.05	1070.45
6	1025.96	1017.37	1130.01	1090.14	1029.98
7	1015.78	1004.81	1030.65	1096.43	927.07
8	1040.27	1045.59	1045.55	1076.13	1061.86
1	1219.34	1188.49	1118.39	1058.00	1066.70
2	1179.81	1124.64	1079.01	961.23	1111.80
3	982.06	1159.01	1192.33	1037.02	1137.96
4	1263.16	1165.50	1092.04	1055.24	1115.49
5	1117.15	1166.69	939.82	1078.09	1107.07
6	1200.53	1090.67	1089.18	996.01	1061.23
7	1254.64	1011.30	1134.55	924.23	1039.87
8	1160.18	1078.88	1132.06	1019.02	1077.63

RMGC	Column				
Row	1	2	3	4	5
1	1054.87	1034.55	1047.55	1057.44	1066.41
2	1042.40	1071.88	1086.86	1058.77	1057.78
3	1035.11	1068.70	1070.71	1045.91	1057.25
4	1076.27	1070.53	1083.21	1073.74	1054.84
5	1016.39	1094.72	1087.79	1074.78	1098.61
6	1080.54	1100.21	1099.90	1057.31	1067.50
7	1150.63	1060.24	1059.50	1058.45	1076.01
8	1084.40	1039.85	1002.66	1061.13	1054.99

PMRC	Column				
Row	1	2	3	4	5
1	1091.94	1116.80	1037.55	1079.42	1101.08
2	1169.94	1056.84	1053.94	1065.27	1075.45
3	1043.42	1024.25	1049.91	1083.52	1016.30
4	1087.54	1086.67	1111.16	1070.60	1036.74
5	1154.92	1122.11	1132.68	1085.76	1116.12
6	1149.38	1294.80	1093.48	1066.19	1098.82
7	1108.67	1138.63	1013.87	1058.61	1132.37
8	1186.10	1065.99	1040.36	1095.10	1103.62
1	1115.94	1065.06	1046.44	1093.56	1076.44
2	1075.43	1032.52	1092.56	1097.92	1123.43
3	1199.51	1076.21	1105.50	1035.56	1059.75
4	1019.59	1012.08	1025.29	1015.10	991.11
5	1019.82	1027.61	1029.31	1041.14	1033.97
6	998.88	1057.98	1012.11	993.40	1020.45
7	1001.41	1054.91	1060.84	1016.73	1020.15
8	1002.88	1090.98	1000.84	1007.87	1021.69
1	1199.12	1141.10	1164.94	1197.44	1207.82
2	1122.59	1115.72	1107.60	1176.94	1063.91
3	1144.43	1048.56	1132.68	1108.20	995.35
4	1127.74	1078.98	1122.31	1053.99	1081.41
5	1065.31	1110.40	1036.68	1083.28	1013.95
6	1032.67	1038.34	998.53	1055.11	1071.27
7	1057.70	1082.21	1054.57	1103.09	1103.92
8	1003.11	1055.78	1082.76	1077.19	1083.70

PMRC	Column				
Row	1	2	3	4	5
1	1025.93	1100.04	1005.95	1108.07	1025.36
2	1087.24	1087.72	1125.54	1118.43	1094.77
3	999.25	1044.51	1045.01	1029.53	1020.49
4	998.86	999.19	1005.68	1065.64	1025.92
5	982.57	989.10	981.89	1015.68	1004.75
6	1001.04	1063.89	1088.44	999.83	1012.67
7	1000.00	1093.90	1028.58	1011.83	1004.25
8	1021.63	1025.21	1022.96	983.75	1019.83
1	1086.40	1094.35	1150.85	1079.86	1085.43
2	1087.11	1087.72	1215.75	1125.41	1159.74
3	1122.47	1075.15	1114.13	1100.92	934.48
4	1065.68	1053.42	1140.13	1117.79	1083.14
5	1101.89	1056.49	1055.95	1083.76	1083.23
6	1095.17	1098.32	1055.63	1097.71	1073.96
7	1098.79	1077.60	1029.48	1059.93	1051.74
8	1098.63	1060.33	1049.20	1024.29	1099.91
1	1026.21	1094.65	1047.01	1026.57	1004.35
2	1018.74	1019.70	990.51	1021.63	1010.62
3	1010.81	994.47	1031.62	1036.94	1019.65
4	1022.41	1040.90	1054.26	1007.58	1003.55
5	1015.71	1078.91	1020.01	1033.47	1019.79
6	1093.06	1002.88	1024.24	1012.77	1025.19
7	997.11	988.26	998.90	1021.16	1015.03
8	990.52	992.39	980.77	992.76	998.79

PMRC	Column				
Row	1	2	3	4	5
1	1046.37	1043.96	1063.64	1013.07	1031.97
2	1054.41	1055.84	1056.34	1017.91	1028.46
3	1110.65	1030.75	1034.02	1058.92	1038.81
4	1053.82	1018.42	1002.88	1002.02	1026.81
5	1045.88	1077.79	1022.84	996.77	1011.85
6	1044.63	1037.62	1040.33	1027.82	1022.39
7	1051.27	1013.86	1029.38	1046.02	1043.82
8	1061.91	998.44	1056.68	1046.97	1089.61

Descriptive the maximum penetration depth among four groups studied

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
negative	279	1096.95792	82.38437	4.93222	991.021	1301.184
positive	280	1029.57251	44.77077	2.67557	933.317	1186.367
RMGC	277	1057.96533	50.91456	3.05916	924.229	1289.969
PMRC	280	1058.29955	50.34102	3.00845	934.475	1294.797
Total	1116	1060.67369	63.60159	1.90386	924.229	1301.184

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	641765.524	3	213921.841	61.490	.000
Within Groups	3868590.389	1112	3478.948		
Total	4510355.913	1115			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	negative	positive	67.38541	4.98941	.000
		RMGC	38.99259	5.00287	.000
		PMRC	38.65837	4.98941	.000
	positive	negative	-67.38541	4.98941	.000
		RMGC	-28.39282	4.99842	.000
		PMRC	-28.72704	4.98494	.000
	GIC	negative	-38.99259	5.00287	.000
		positive	28.39282	4.99842	.000
		PMRC	-.33422	4.99842	1.000
	PMRC	negative	-38.65837	4.98941	.000
		positive	28.72704	4.98494	.000
		RMGC	.33422	4.99842	1.000

The mean difference is significant at the .05 level.

Descriptive the maximum penetration depth from the surface (8 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	35	1100.11137	92.83020	15.69117	998.440	1301.184
2	35	1104.02309	83.57748	14.12717	1029.386	1294.312
3	35	1107.75434	81.90744	13.84488	1005.762	1269.150
4	34	1090.73515	67.93007	11.64991	996.772	1222.886
5	35	1084.15420	76.44284	12.92120	1002.067	1295.379
6	35	1100.85829	83.87540	14.17753	999.021	1242.774
7	35	1094.60749	85.48603	14.44978	996.116	1286.524
8	35	1093.24163	89.96591	15.20701	991.021	1294.453
Total	279	1096.95792	82.38437	4.93222	991.021	1301.184

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14438.33	7	2062.618	0.299	0.954
Within Groups	1872399	271	6909.221		
Total	1886837	278			

Descriptive maximum penetration from the interface of negative group (5 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	56	1101.91304	83.37477	11.14142	1003.987	1295.379
2	56	1093.45780	80.34864	10.73704	991.021	1294.312
3	55	1099.80173	87.58845	11.81042	1002.789	1299.643
4	56	1092.49216	79.56387	10.63217	996.116	1301.184
5	56	1097.17564	83.48834	11.15660	997.336	1299.851
Total	279	1096.95792	82.38437	4.93222	991.021	1301.184

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3625.284	4	906.321	0.132	0.971
Within Groups	1883212	274	6873.037		
Total	1886837	278			

Descriptive maximum penetration from the surface of positive group (8 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	35	1042.22703	50.50593	8.53706	941.490	1161.461
2	35	1034.98460	45.08625	7.62097	957.303	1114.446
3	35	1032.13900	55.06927	9.30841	951.767	1169.783
4	35	1026.38649	40.23908	6.80165	944.751	1106.792
5	35	1031.45820	46.04377	7.78282	954.751	1186.367
6	35	1024.18560	43.70885	7.38814	951.767	1136.944
7	35	1018.97357	40.06938	6.77296	933.317	1118.937
8	35	1026.22560	34.69350	5.86427	941.490	1102.343
Total	280	1029.57251	44.77077	2.67557	933.317	1186.367

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12679.769	7	1811.396	0.901	0.506
Within Groups	546553.926	272	2009.389		
Total	559233.695	279			

Descriptive maximum penetration from the interface of positive group (5 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	56	1101.91304	83.37477	11.14142	1003.987	1295.379
2	56	1093.45780	80.34864	10.73704	991.021	1294.312
3	55	1099.80173	87.58845	11.81042	1002.789	1299.643
4	56	1092.49216	79.56387	10.63217	996.116	1301.184
5	56	1097.17564	83.48834	11.15660	997.336	1299.851
Total	279	1096.95792	82.38437	4.93222	991.021	1301.184

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1798.699	4	449.675	0.222	0.926
Within Groups	557434.996	275	2027.036		
Total	559233.695	279			

Descriptive maximum penetration from the surface of resin modified GIC group (8 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	35	1066.28657	66.22847	11.19466	979.688	1289.969
2	35	1047.62671	48.15927	8.14040	957.247	1179.805
3	34	1053.84091	44.44666	7.62254	971.223	1192.326
4	35	1061.71486	55.61336	9.40037	990.189	1263.160
5	34	1058.02956	44.88276	7.69733	939.817	1166.686
6	35	1063.68897	43.28585	7.31664	973.540	1200.531
7	35	1058.30554	62.87023	10.62701	924.229	1254.639
8	34	1054.00024	36.36661	6.23682	987.357	1160.175
Total	277	1057.96533	50.91456	3.05916	924.229	1289.969

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8920.324	7	1274.332	0.485	0.845
Within Groups	706552.251	269	2626.588		
Total	715472.574	276			

Descriptive maximum penetration from the interface of resin modified GIC (5 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	55	1068.16831	65.78221	8.87007	979.688	1263.160
2	56	1057.49545	42.61464	5.69462	990.189	1188.494
3	55	1059.37765	57.66948	7.77615	939.817	1289.969
4	56	1049.28304	45.04926	6.01996	924.229	1173.748
5	55	1055.66862	38.57375	5.20128	927.066	1137.964
Total	277	1057.96533	50.91456	3.05916	924.229	1289.969

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10359.137	4	2589.784	0.999	0.409
Within Groups	705113.437	272	2592.329		
Total	715472.574	276			

Descriptive maximum penetration from the interface of Polyacid modified resin composite group (8 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	35	1082.705	54.69903	9.24582	1004.35	1207.82
2	35	1082.675	51.50798	8.70644	990.505	1215.75
3	35	1056.449	51.58513	8.71948	934.475	1199.51
4	35	1048.812	42.27726	7.14616	991.113	1140.13
5	35	1050.039	44.84699	7.58052	981.888	1154.92
6	35	1054.256	56.61086	9.56898	993.403	1294.8
7	35	1047.673	40.50374	6.84638	988.264	1138.63
8	35	1043.787	45.87306	7.75396	980.766	1186.1
Total	280	1058.3	50.34102	3.00845	934.475	1294.8

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	59197.891	7	8456.842	3.551	0.001
Within Groups	647848.935	272	2381.798		
Total	707046.826	279			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	1	2	2.98E-02	11.66631	1.000
		3	26.25657	11.66631	0.706
		4	33.8936	11.66631	0.111
		5	32.66623	11.66631	0.153
		6	28.44866	11.66631	0.431
		7	35.03166	11.66631	0.082
		8	38.918	11.66631	0.027
	2	1	-2.98E-02	11.66631	1.000
		3	26.22677	11.66631	0.71
		4	33.8638	11.66631	0.112
		5	32.63643	11.66631	0.155
		6	28.41886	11.66631	0.434
		7	35.00186	11.66631	0.083
		8	38.8882	11.66631	0.027
	3	1	-26.25657	11.66631	0.706
		2	-26.22677	11.66631	0.71
		4	7.63703	11.66631	1.000
		5	6.40966	11.66631	1.000
		6	2.19209	11.66631	1.000
		7	8.77509	11.66631	1.000
		8	12.66143	11.66631	1.000

			Mean Difference (I-J)	Std. Error	Sig.
	4	1	-33.89360	11.66631	.111
		2	-33.86380	11.66631	.112
		3	-7.63703	11.66631	1.000
		5	-1.22737	11.66631	1.000
		6	-5.44494	11.66631	1.000
		7	1.13806	11.66631	1.000
		8	5.02440	11.66631	1.000
	5	1	-32.66623	11.66631	.153
		2	-32.63643	11.66631	.155
		3	-6.40966	11.66631	1.000
		4	1.22737	11.66631	1.000
		6	-4.21757	11.66631	1.000
		7	2.36543	11.66631	1.000
		8	6.25177	11.66631	1.000
	6	1	-28.44866	11.66631	.431
		2	-28.41886	11.66631	.434
		3	-2.19209	11.66631	1.000
		4	5.44494	11.66631	1.000
		5	4.21757	11.66631	1.000
		7	6.58300	11.66631	1.000
		8	10.46934	11.66631	1.000

			Mean Difference (I-J)	Std. Error	Sig.
	7	1	-35.0317	11.66631	0.082
		2	-35.0019	11.66631	0.083
		3	-8.77509	11.66631	1
		4	-1.13806	11.66631	1
		5	-2.36543	11.66631	1
		6	-6.583	11.66631	1
		8	3.88634	11.66631	1
	8	1	-38.918	11.66631	0.027
		2	-38.8882	11.66631	0.027
		3	-12.6614	11.66631	1
		4	-5.0244	11.66631	1
		5	-6.25177	11.66631	1
		6	-10.4693	11.66631	1
		7	-3.88634	11.66631	1

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the interface of Polyacid modified resin composite group (5 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	56	1065.9675	57.2092	7.6449	982.569	1199.51
2	56	1062.32677	49.97111	6.67767	988.264	1294.8
3	56	1056.68691	50.11689	6.69715	980.766	1215.75
4	56	1056.17411	45.78688	6.11853	983.754	1197.44
5	56	1050.34246	48.26136	6.4492	934.475	1207.82
Total	280	1058.29955	50.34102	3.00845	934.475	1294.8

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8145.159	4	2036.290	.801	.525
Within Groups	698901.667	275	2541.461		
Total	707046.826	279			

APPENDIX 5.3

Maximum penetration depth of enamel (nm) in series column 6 x4 rows

Negative	Column					
Row	1	2	3	4	5	6
1	1039.85	1087.13	1098.79	1000.96	1098.77	1090.35
2	1023.57	1065.42	1093.01	992.85	994.97	997.23
3	1009.85	1026.04	1008.88	980.64	955.30	973.71
4	1002.28	1024.55	1009.98	987.08	957.33	957.94
1	1087.64	979.91	914.30	985.44	974.53	993.31
2	1056.12	976.81	888.33	937.94	952.82	942.94
3	929.47	907.86	859.31	872.66	930.44	948.73
4	939.51	885.63	875.10	871.12	954.74	864.13
1	992.05	924.73	926.83	908.42	850.39	859.46
2	959.36	853.38	842.12	848.64	827.02	852.64
3	851.70	855.68	872.86	872.28	881.54	879.38
4	.	863.55	867.59	865.39	901.32	864.01
1	966.50	971.25	981.57	1005.27	993.67	992.53
2	952.36	944.92	957.73	998.59	987.83	992.28
3	917.58	920.41	943.67	997.98	975.59	965.87
4	915.26	911.19	945.68	974.40	957.95	928.53
1	1002.05	995.83	976.77	955.68	984.76	934.76
2	998.73	958.42	943.38	965.76	976.92	892.49
3	976.99	950.39	939.39	943.23	954.72	865.85
4	934.88	953.63	891.70	924.76	965.86	867.59

Positive	Column					
Row	1	2	3	4	5	6
1	844.62	851.31	838.84	826.21	869.94	857.83
2	824.25	853.28	845.86	860.32	874.96	834.29
3	834.34	846.22	851.29	850.45	842.42	844.82
4	845.33	816.32	836.65	866.69	852.97	843.51
1	923.87	943.83	946.21	964.64	941.06	951.11
2	882.17	944.28	933.81	944.84	941.33	964.23
3	848.37	905.40	934.30	961.33	956.34	894.08
4	842.41	934.11	921.59	954.94	956.63	877.93
1	908.71	889.09	890.05	919.13	922.11	899.54
2	915.84	870.94	884.89	906.65	916.31	850.08
3	985.70	870.88	876.94	912.96	893.80	865.44
4	907.70	888.03	875.09	900.42	897.18	856.80
1	908.20	888.66	935.75	870.20	897.50	892.07
2	924.75	856.80	904.84	845.23	877.50	850.61
3	904.84	864.65	918.57	833.57	879.20	854.94
4	892.09	869.87	868.63	875.66	858.07	859.09
1	908.71	889.09	890.05	897.18	922.11	928.08
2	915.86	875.94	884.89	912.96	900.42	905.84
3	907.70	870.88	901.58	928.79	926.31	906.70
4	907.70	888.03	901.88	920.52	903.80	907.70

RMGC	Column					
Row	1	2	3	4	5	6
1	806.92	830.24	865.13	904.32	872.31	894.99
2	810.10	832.90	891.98	856.39	891.17	885.71
3	843.88	847.72	908.77	875.99	874.95	889.69
4	846.86	852.12	893.37	845.29	868.59	870.02
1	839.46	920.39	988.42	946.83	953.38	942.05
2	852.64	897.02	928.64	902.12	924.73	899.36
3	879.38	891.54	902.28	882.86	905.68	900.70
4	864.01	901.32	865.39	867.59	883.55	937.41
1	891.72	926.79	929.19	994.15	981.09	981.17
2	874.58	937.89	931.30	975.56	977.82	963.20
3	879.21	941.78	952.37	967.01	975.36	950.97
4	887.57	950.57	912.73	956.60	969.05	940.84
1	895.04	967.50	949.56	969.64	953.90	952.16
2	883.45	958.48	945.91	951.91	943.93	980.79
3	879.93	931.93	935.28	945.97	958.33	964.83
4	893.25	899.33	924.60	952.91	909.70	958.45
1	981.56	1039.20	1184.08	1053.07	963.20	923.46
2	952.13	1001.80	965.50	935.46	956.65	919.89
3	863.58	860.16	884.43	908.05	910.06	899.64
4	892.64	969.43	903.89	901.45	923.44	876.89
1	946.17	970.17	.	999.34	992.41	985.39
2	926.51	966.28	913.64	985.15	965.79	972.54
3	914.40	906.55	915.06	941.25	939.21	927.95
4	911.20	894.01	931.10	928.40	939.39	909.71

PMRC	Column					
Row	1	2	3	4	5	6
1	882.79	983.66	997.90	997.80	979.31	954.96
2	899.01	1002.74	980.75	991.88	966.71	943.98
3	883.84	906.31	920.38	912.88	934.73	921.88
4	874.41	889.31	913.99	895.30	901.75	910.77
1	879.57	974.52	994.03	932.19	957.51	927.17
2	887.15	950.30	974.93	889.96	855.06	905.83
3	876.50	877.41	871.34	830.04	882.46	901.48
4	883.17	868.61	879.38	818.18	877.61	879.33
1	901.62	967.65	977.11	990.73	980.46	997.22
2	915.85	940.95	932.65	962.05	981.93	991.17
3	909.00	910.27	881.27	965.19	917.97	910.78
4	905.22	947.33	924.95	923.34	926.89	937.96
1	890.25	923.61	914.76	947.19	935.76	938.74
2	897.09	946.76	888.82	877.18	868.82	915.93
3	822.58	841.68	861.71	826.41	821.71	858.22
4	818.40	833.97	839.26	813.97	814.56	836.76
1	979.98	998.70	1013.61	1004.85	1055.87	994.60
2	940.08	994.73	1026.99	997.84	1096.54	995.12
3	954.87	963.91	983.23	978.92	970.79	967.07
4	940.77	942.79	976.90	963.75	961.41	963.28
1	881.60	993.50	991.74	994.92	1017.19	999.29
2	871.23	989.62	971.67	974.92	974.58	985.70
3	886.20	968.66	953.18	999.03	935.75	953.18
4	910.06	980.12	912.21	976.30	966.46	988.68

Descriptive the maximum penetration depth among four groups studied

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
negative	119	950.24110	62.02553	5.68587	827.023	1098.786
Positive	120	890.99847	36.69033	3.34935	816.322	985.701
RMGC	143	922.67662	50.23149	4.20057	806.924	1184.078
PMRC	144	932.61631	55.28453	4.60704	813.969	1096.542
Total	526	924.40687	55.77176	2.43176	806.924	1184.078

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	223489.045	3	74496.348	27.589	.000
Within Groups	1409518.066	522	2700.226		
Total	1633007.11	525			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	negative	positive	59.24263	6.72256	.000
		RMGC	27.56449	6.44777	.000
		PMRC	17.62479	6.43759	0.038
	positive	negative	-59.24263	6.72256	.000
		RMGC	-31.67815	6.43309	.000
		PMRC	-41.61785	6.42289	.000
	RMGC	negative	-27.56449	6.44777	.000
		positive	31.67815	6.43309	.000
		PMRC	-9.9397	6.13468	0.635
	PMRC	negative	-17.62479	6.43759	0.038
		positive	41.61785	6.42289	.000
		RMGC	9.9397	6.13468	0.635

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the surface of negative group (4 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
25 microns	30	985.78297	63.83123	11.65393	850.387	1098.786
50 microns	30	955.81857	66.59831	12.15913	827.023	1093.013
75 microns	30	932.26593	50.88919	9.29105	851.702	1026.043
100 microns	29	926.29886	48.89282	9.07917	863.550	1024.554
Total	119	950.24110	62.02553	5.68587	827.023	1098.786

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	65146.863	3	21715.621	6.423	.000
Within Groups	388818.84	115	3381.033		
Total	453965.7	118			

Multiple Comparisons

			Mean Difference (i-J)	Std. Error	Sig.
Bonferroni	25 microns	50 microns	29.96440	15.01340	.290
		75 microns	53.51703	15.01340	.003
		100 microns	59.48410	15.14227	.001
	50 microns	25 microns	-29.96440	15.01340	.290
		75 microns	23.55263	15.01340	.717
		100 microns	29.51970	15.14227	.322
	75 microns	25 microns	-53.51703	15.01340	.003
		50 microns	-23.55263	15.01340	.717
		100 microns	5.96707	15.14227	1.000
	100 microns	25 microns	-59.48410	15.14227	.001
		50 microns	-29.51970	15.14227	.322
		75 microns	-5.96707	15.14227	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the interface of negative group (6 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
50 microns	19	976.61737	56.35737	12.92927	851.702	1087.637
100 microns	20	952.83600	65.78639	14.71028	853.381	1087.132
150 microns	20	941.84830	71.64991	16.02141	842.123	1098.786
200 microns	20	944.45355	53.41746	11.94451	848.637	1005.266
250 microns	20	953.82335	57.73010	12.90884	827.023	1098.767
300 microns	20	933.18685	64.06506	14.32538	852.637	1090.354
Total	119	950.24110	62.02553	5.68587	827.023	1098.786

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21505.409	5	4301.082	1.124	0.352
Within Groups	432460.291	113	3827.082		
Total	453965.7	118			

Descriptive maximum penetration from the surface of positive group (4 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
25 microns	30	900.52387	35.01617	6.39305	826.214	964.637
50 microns	30	890.13220	36.93012	6.74249	824.252	964.227
75 microns	30	889.09397	40.15422	7.33112	833.573	985.701
100 microns	30	884.24383	34.29382	6.26117	816.322	956.631
Total	120	890.99847	36.69033	3.34935	816.322	985.701

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4222.076	3	1407.359	1.047	0.375
Within Groups	155973.4	116	1344.598		
Total	160195.475	119			

Descriptive maximum penetration from the interface of positive group (6 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
50 microns	20	891.65840	40.08279	8.96278	824.252	985.701
100 microns	20	880.88015	32.44984	7.25600	816.322	944.283
150 microns	20	892.08610	33.37986	7.46396	836.647	946.209
200 microns	20	897.63405	42.51082	9.50571	826.214	964.637
250 microns	20	901.49810	33.63013	7.51993	842.417	956.631
300 microns	20	882.23400	36.96787	8.26627	834.290	964.227
Total	120	890.99847	36.69033	3.34935	816.322	985.701

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6701.759	5	1340.352	0.995	0.424
Within Groups	153493.717	114	1346.436		
Total	160195.475	119			

Descriptive maximum penetration from the surface of resin modified glass ionomer cement group (4 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
25 microns	35	948.41203	68.78677	11.62709	806.924	1184.078
50 microns	36	926.63642	45.70301	7.61717	810.097	1001.802
75 microns	36	909.90961	34.82870	5.80478	843.878	975.357
100 microns	36	906.46328	34.96115	5.82686	845.294	969.426
Total	143	922.67662	50.23149	4.20057	806.924	1184.078

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	39076.657	3	13025.552	5.672	0.001
Within Groups	319218.071	139	2296.533		
Total	358294.728	142			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	25 microns	50 microns	21.77561	11.37576	0.346
		75 microns	38.50242	11.37576	0.006
		100 microns	41.94875	11.37576	0.002
	50 microns	25 microns	-21.77561	11.37576	0.346
		75 microns	16.72681	11.29536	0.845
		100 microns	20.17314	11.29536	0.458
	75 microns	25 microns	-38.50242	11.37576	0.006
		50 microns	-16.72681	11.29536	0.845
		100 microns	3.44633	11.29536	1.000
	100 microns	25 microns	-41.94875	11.37576	0.002
		50 microns	-20.17314	11.29536	0.458
		75 microns	-3.44633	11.29536	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the surface of enamel resin modified glass ionomer interface group (6 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
50 microns	24	884.008	41.79461	8.53129	806.924	981.562
100 microns	24	920.6304	53.43489	10.90735	830.239	1039.2
150 microns	23	931.4186	62.63829	13.06099	865.13	1184.08
200 microns	24	935.3049	50.3134	10.27018	845.294	1053.07
250 microns	24	934.7367	37.58125	7.67124	868.594	992.414
300 microns	24	930.3254	35.48122	7.24257	870.023	985.388
Total	143	922.6766	50.23149	4.20057	806.924	1184.08

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	46466.531	5	9293.31	4.083	0.002
Within Groups	311828.197	137	2276.12		
Total	358294.728	142			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	50 microns	100 microns	-36.62233	13.77231	0.132
		150 microns	-47.41052	13.9212	0.013
		250 microns	-50.72867	13.77231	0.005
		300 microns	-46.31733	13.77231	0.015
	100 microns	50 microns	36.62233	13.77231	0.132
		150 microns	-10.78819	13.9212	1.000
		200 microns	-14.6745	13.77231	1.000
		250 microns	-14.10633	13.77231	1.000
		300 microns	-9.695	13.77231	1.000
	150 microns	50 microns	47.41052	13.9212	0.013
		100 microns	10.78819	13.9212	1.000
		200 microns	-3.88631	13.9212	1.000
		250 microns	-3.31814	13.9212	1.000
		300 microns	1.09319	13.9212	1.000
	200 microns	50 microns	51.29683	13.77231	0.004
		100 microns	14.6745	13.77231	1.000
		150 microns	3.88631	13.9212	1.000
		250 microns	0.56817	13.77231	1.000
		300 microns	4.9795	13.77231	1.000

			Mean Difference (I-J)	Std. Error	Sig.
	250 microns	50 microns	50.72867	13.77231	.005
		100 microns	14.10633	13.77231	1.000
		150 microns	3.31814	13.92120	1.000
		200 microns	-.56817	13.77231	1.000
		300 microns	4.41133	13.77231	1.000
	300 microns	50 microns	46.31733	13.77231	.015
		100 microns	9.69500	13.77231	1.000
		150 microns	-1.09319	13.92120	1.000
		200 microns	-4.97950	13.77231	1.000
		250 microns	-4.41133	13.77231	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the surface of polyacid modified resin composite group (4 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
25 microns	36	965.3419	43.3862	7.23104	879.568	1055.87
50 microns	36	949.6255	52.4045	8.73408	855.055	1096.54
75 microns	36	910.0225	49.8066	8.3011	821.708	999.03
100 microns	36	905.4753	51.926	8.65433	813.969	988.683
Total	144	932.6163	55.2845	4.60704	813.969	1096.54

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	93866.278	3	31288.759	12.764	.000
Within Groups	343195.884	140	2451.399		
Total	437062.162	143			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	25 microns	50 microns	15.71641	11.67	1.000
		75 microns	55.31944	11.67	.000
		100 microns	59.86667	11.67	.000
	50 microns	25 microns	-15.7164	11.67	1.000
		75 microns	39.60303	11.67	0.005
		100 microns	44.15025	11.67	0.001
	75 microns	25 microns	-55.3194	11.67	.000
		50 microns	-39.603	11.67	0.005
		100 microns	4.54722	11.67	1.000
	100 microns	25 microns	-59.8667	11.67	.000
		50 microns	-44.1503	11.67	0.001
		75 microns	-4.54722	11.67	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the interface of enamel polyacid modified resin composite interface group (6 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
50 microns	24	895.46771	35.74741	7.29691	818.396	979.980
100 microns	24	941.54533	50.00150	10.20651	833.969	1002.741
150 microns	24	940.94762	52.77807	10.77328	839.255	1026.994
200 microns	24	936.03271	63.69425	13.00153	813.969	1004.850
250 microns	24	940.90933	67.41541	13.76111	814.557	1096.542
300 microns	24	940.79517	45.69429	9.32731	836.757	999.286
Total	144	932.61631	55.28453	4.60704	813.969	1096.542

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40235.920	5	8047.184	2.798	.019
Within Groups	396826.242	138	2875.552		
Total	437062.162	143			

Multiple comparisons

			Mean Difference (I-J)	Std. Error	Sig.
LSD	50 microns	100 microns	-46.07762	15.47997	.003
		150 microns	-45.47992	15.47997	.004
		200 microns	-40.56500	15.47997	.010
		250 microns	-45.44162	15.47997	.004
		300 microns	-45.32746	15.47997	.004
	100 microns	50 microns	46.07762	15.47997	.003
		150 microns	.59771	15.47997	.969
		200 microns	5.51263	15.47997	.722
		250 microns	.63600	15.47997	.967
		300 microns	.75016	15.47997	.961
	150 microns	50 microns	45.47992	15.47997	.004
		100 microns	-.59771	15.47997	.969
		200 microns	4.91492	15.47997	.751
		250 microns	3.8292E-02	15.47997	.998
		300 microns	.15245	15.47997	.992
	200 microns	50 microns	40.56500	15.47997	.010
		100 microns	-5.51263	15.47997	.722
		150 microns	-4.91492	15.47997	.751
		250 microns	-4.87663	15.47997	.753
		300 microns	-4.76246	15.47997	.759

			Mean Difference (I-J)	Std. Error	Sig.
	250 microns	50 microns	45.44162	15.47997	0.004
		100 microns	-0.636	15.47997	0.967
		150 microns	-3.83E-02	15.47997	0.998
		200 microns	4.87663	15.47997	0.753
		300 microns	0.11416	15.47997	0.994
	300 microns	50 microns	45.32746	15.47997	0.004
		100 microns	-0.75016	15.47997	0.961
		150 microns	-0.15245	15.47997	0.992
		200 microns	4.76246	15.47997	0.759
		250 microns	-0.11416	15.47997	0.994
Bonferroni	50 microns	100 microns	-46.07762	15.47997	0.052
		150 microns	-45.47992	15.47997	0.058
		200 microns	-40.565	15.47997	0.146
		250 microns	-45.44162	15.47997	0.059
		300 microns	-45.32746	15.47997	0.06
	100 microns	50 microns	46.07762	15.47997	0.052
		150 microns	0.59771	15.47997	1
		200 microns	5.51263	15.47997	1
		250 microns	0.636	15.47997	1
		300 microns	0.75016	15.47997	1

			Mean Difference (I-J)	Std. Error	Sig.
	150 microns	50 microns	45.47992	15.47997	.058
		100 microns	-.59771	15.47997	1.000
		200 microns	4.91492	15.47997	1.000
		250 microns	3.8292E-02	15.47997	1.000
		300 microns	.15245	15.47997	1.000
	200 microns	50 microns	40.56500	15.47997	.146
		100 microns	-5.51263	15.47997	1.000
		150 microns	-4.91492	15.47997	1.000
		250 microns	-4.87663	15.47997	1.000
		300 microns	-4.76246	15.47997	1.000
	250 microns	50 microns	45.44162	15.47997	.059
		100 microns	-.63600	15.47997	1.000
		150 microns	-3.82917E-02	15.47997	1.000
		200 microns	4.87663	15.47997	1.000
		300 microns	.11416	15.47997	1.000
	300 microns	50 microns	45.32746	15.47997	.060
		100 microns	-.75016	15.47997	1.000
		150 microns	-.15245	15.47997	1.000
		200 microns	4.76246	15.47997	1.000
		250 microns	-.11416	15.47997	1.000

The mean difference is significant at the .05 level.

APPENDIX 5.4

Maximum penetration depth of dentin (nm) in series column 6 x 4 rows

Negative	Column					
Row	1	2	3	4	5	6
1	1129.30	1206.90	1157.37	1147.96	1166.42	1205.88
2	1027.73	1194.86	1151.53	1140.20	1140.29	1186.84
3	1017.07	1207.70	1154.10	1141.52	1135.40	1143.88
4	1106.79	1214.00	1182.57	1145.47	1103.06	1118.07
1	1245.64	1176.01	1184.02	1244.71	.	1031.53
2	1223.72	1194.62	1150.73	1236.82	1055.82	997.02
3	1001.10	1032.86	1095.87	1025.50	1003.05	990.18
4	1007.90	1001.61	1016.02	1012.10	993.80	998.76
1	1245.64	1176.01	1184.02	1224.71	1145.74	1231.53
2	1203.72	1094.62	1050.73	1236.82	1055.82	1097.02
3	1001.10	1032.86	1095.87	1025.50	993.05	1001.17
4	997.90	1001.61	1016.02	1005.10	993.80	999.76
1	1001.15	1012.96	1014.01	1004.75	1001.15	1012.65
2	1042.93	993.78	997.56	1007.55	1008.83	993.65
3	990.83	999.38	988.81	998.76	991.83	981.78
4	1001.63	989.45	997.83	987.56	987.98	990.87
1	1145.64	1145.74	1236.82	1032.89	1016.02	1001.61
2	1176.01	1131.53	1242.73	1016.02	1004.61	1016.99
3	1184.02	1027.02	1204.72	1001.61	1032.86	997.90
4	1143.02	1055.83	1001.10	995.87	993.80	986.25

Positive	Column					
Row	1	2	3	4	5	6
1	879.70	872.97	846.54	889.37	811.79	822.29
2	854.22	866.05	849.96	907.07	879.05	857.21
3	858.43	849.53	872.69	877.96	856.82	897.05
4	896.51	844.30	876.17	810.97	879.23	838.34
1	981.89	935.77	951.09	926.97	912.60	943.86
2	941.47	941.89	919.48	909.62	909.47	873.66
3	944.62	919.68	925.60	920.95	905.07	913.41
4	939.26	890.00	928.48	941.99	1001.91	918.67
1	981.89	935.77	951.09	926.97	912.60	943.86
2	941.47	941.89	919.48	909.62	909.47	873.66
3	944.62	919.68	925.60	920.95	905.07	913.41
4	939.26	890.00	928.48	941.99	1001.91	918.67
1	879.70	872.97	846.54	889.37	811.79	822.29
2	854.22	866.05	849.96	907.07	879.05	857.21
3	858.43	849.53	872.69	877.96	856.82	897.05
4	896.51	844.30	876.17	810.97	879.23	838.34
1	900.71	889.92	906.28	907.84	902.68	894.87
2	849.85	849.19	900.81	914.55	891.94	874.28
3	917.22	823.37	921.86	883.25	898.95	870.04
4	878.95	822.74	871.47	892.86	845.22	872.15
1	773.28	803.23	803.46	826.66	832.54	856.20
2	787.98	820.23	790.04	814.14	818.44	791.40
3	761.08	781.86	840.82	830.78	799.68	781.07
4	845.26	853.83	881.82	829.27	832.15	814.55
1	981.89	943.86	919.48	920.95	993.91	939.26
2	935.77	912.60	931.48	905.07	941.99	952.30
3	951.09	909.47	944.47	913.41	928.48	918.67
4	926.97	909.62	925.60	918.67	890.00	913.41

RMGC	Column					
Row	1	2	3	4	5	6
1	860.67	838.97	939.98	930.51	933.99	959.91
2	880.34	858.90	892.82	950.04	908.58	908.15
3	880.04	901.28	893.93	885.91	931.77	873.21
4	860.82	890.81	964.34	909.67	910.13	879.78
1	851.97	891.94	915.05	936.28	988.26	821.69
2	870.04	902.69	904.58	900.81	859.08	871.22
3	837.71	820.69	887.51	905.88	822.74	893.98
4	845.23	898.95	876.15	891.07	838.10	855.91
1	956.85	988.08	983.85	1063.86	1059.82	1041.90
2	970.71	1018.97	1016.51	1086.20	1057.73	1035.18
3	978.87	1011.24	1008.13	1009.78	1024.50	1032.42
4	979.27	977.87	1025.78	1006.43	1006.95	1008.77
1	826.30	856.27	879.38	871.29	910.97	960.28
2	837.54	855.74	867.40	897.25	880.40	927.45
3	836.39	834.37	860.61	898.32	877.70	893.50
4	857.54	858.06	870.20	879.03	906.14	865.95
1	888.44	923.60	928.55	938.53	977.56	1001.15
2	883.96	874.08	943.12	947.68	918.82	980.83
3	892.54	942.02	935.11	923.15	942.60	960.63
4	871.60	898.55	914.11	924.03	962.54	947.98
1	905.61	933.00	930.21	927.01	958.39	1001.39
2	869.14	894.40	943.59	896.63	960.17	927.92
3	877.57	890.18	875.96	894.07	890.27	851.95
4	882.81	844.64	880.99	868.17	899.05	914.58
1	958.16	1024.45	1072.81	1019.90	1035.75	1012.29
2	909.08	990.96	882.21	911.64	964.25	1009.75
3	888.08	867.49	874.37	890.66	868.32	961.56
4	874.37	906.13	851.06	993.62	865.37	899.00

PMRC	Column					
Row	1	2	3	4	5	6
1	835.23	855.84	927.79	919.52	963.86	930.30
2	837.15	852.88	971.54	897.24	922.63	934.76
3	879.43	842.51	906.89	894.85	902.69	966.46
4	880.24	856.42	918.33	930.30	894.30	930.20
1	987.92	1065.76	1027.02	1028.50	1007.53	974.80
2	933.59	992.09	999.12	998.59	1014.53	992.57
3	920.35	962.54	978.81	1009.89	929.60	965.28
4	920.82	957.51	959.12	922.37	950.53	970.71
1	993.90	1096.86	992.90	974.48	986.59	997.22
2	931.82	987.15	989.21	964.99	974.71	919.35
3	851.24	976.60	931.71	976.40	892.21	909.14
4	831.28	973.60	928.91	946.79	907.01	906.70
1	997.45	1036.82	1002.94	1000.58	1021.54	1044.49
2	920.82	994.29	995.66	974.36	1089.07	1026.89
3	845.96	996.60	977.10	944.77	958.17	1024.09
4	966.52	989.63	954.67	985.31	964.42	996.64
1	908.16	863.25	914.48	876.30	838.03	917.22
2	831.82	896.60	904.96	906.59	917.01	862.35
3	855.80	912.90	898.91	904.71	892.21	926.70
4	833.11	891.71	892.21	855.26	886.79	919.14
1	859.23	858.14	804.54	904.39	871.59	883.39
2	867.67	910.68	933.02	891.21	883.75	895.66
3	850.64	873.91	853.98	896.56	853.57	918.92
4	802.26	885.72	896.72	948.16	847.39	918.42
1	936.97	942.57	894.12	1032.88	1012.26	977.72
2	945.82	987.20	887.20	885.42	933.04	967.01
3	924.66	808.38	869.72	901.67	894.04	952.69
4	941.82	827.88	849.16	886.18	879.07	891.59

Descriptive of maximum penetration depth among four groups studied

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximun
negative	119	1078.50994	87.57031	8.02756	981.776	1245.644
positive	120	883.92275	50.75432	4.63321	761.078	1001.912
RMGC	168	920.59467	59.80642	4.61417	820.691	1086.200
PMRC	168	929.25770	59.07619	4.55783	802.259	1096.856
Total	575	948.15411	94.22694	3.92954	761.078	1245.644

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2704792.861	3	901597.620	215.259	.000
Within Groups	2391590.448	571	4188.425		
Total	5096383.309	574			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	negative	positive	194.58719	8.37260	.000
		RMGC	157.91527	7.75422	.000
		PMRC	149.25224	7.75422	.000
	positive	negative	-194.58719	8.37260	.000
		RMGC	-36.67192	7.73529	.000
		PMRC	-45.33495	7.73529	.000
	RMGC	negative	-157.91527	7.75422	.000
		positive	36.67192	7.73529	.000
		PMRC	-8.66303	7.06132	1.000
	PMRC	negative	-149.25224	7.75422	.000
		positive	45.33495	7.73529	.000
		RMGC	8.66303	7.06132	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the surface of negative group (4 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximun
25 microns	29	1128.57859	91.38309	16.96941	1001.154	1245.644
50 microns	30	1102.36947	87.66688	16.00571	993.654	1242.731
75 microns	30	1049.90950	72.32847	13.20531	981.776	1207.699
100 microns	30	1034.85117	65.64696	11.98544	986.245	1214.002
Total	119	1078.50994	87.57031	8.02756	981.776	1245.644

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	171499.731	3	57166.577	8.964	.000
Within Groups	733390.343	115	6377.307		
Total	904890.074	118			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	25 microns	50 microns	26.20912	20.79625	1.000
		75 microns	78.66909	20.79625	.001
		100 microns	93.72742	20.79625	.000
	50 microns	25 microns	-26.20912	20.79625	1.000
		75 microns	52.45997	20.61926	.074
		100 microns	67.51830	20.61926	.008
	75 microns	25 microns	-78.66909	20.79625	.001
		50 microns	-52.45997	20.61926	.074
		100 microns	15.05833	20.61926	1.000
	100 microns	25 microns	-93.72742	20.79625	.000
		50 microns	-67.51830	20.61926	.008
		75 microns	-15.05833	20.61926	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the interface of negative group (6 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
50 microns	20	1094.64240	94.80774	21.19965	990.830	1245.644
100 microns	20	1094.46705	87.32570	19.52662	989.453	1214.002
150 microns	20	1106.12080	88.47459	19.78352	988.806	1242.731
200 microns	20	1081.57110	96.04457	21.47622	987.563	1244.707
250 microns	19	1043.33274	62.33778	14.30127	987.984	1166.419
300 microns	20	1049.16670	82.33840	18.41143	981.776	1231.531
Total	119	1078.50994	87.57031	8.02756	981.776	1245.644

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	66464.110	5	13292.822	1.792	.120
Within Groups	838425.964	113	7419.699		
Total	904890.074	118			

Descriptive maximum penetration from the interface of positive group (6 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
25 microns	30	892.39337	57.60699	10.51755	773.281	993.912
50 microns	30	879.70537	49.22090	8.98647	787.977	952.302
75 microns	30	880.57963	52.30635	9.54979	761.078	951.088
100 microns	30	883.01263	44.58954	8.14090	810.972	1001.912
Total	120	883.92275	50.75432	4.63321	761.078	1001.912

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3046.272	3	1015.424	.388	.762
Within Groups	303497.833	116	2616.361		
Total	306544.106	119			

Descriptive maximum penetration from the surface of negative group (4 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
50 microns	20	890.30540	64.80937	14.49182	761.078	981.886
100 microns	20	872.00430	48.11468	10.75877	781.863	943.857
150 microns	20	890.38005	45.80294	10.24185	790.035	951.088
200 microns	20	887.11625	41.30732	9.23660	810.972	941.986
250 microns	20	886.59600	55.26064	12.35665	799.684	1001.912
300 microns	20	877.13450	49.57439	11.08517	781.069	952.302
Total	120	883.92275	50.75432	4.63321	761.078	1001.912

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5758.189	5	1151.638	0.436	0.822
Within Groups	300785.917	114	2638.473		
Total	306544.106	119			

Descriptive maximum penetration from the surface of resin modified glass ionomer cement negative group (4 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
25 microns	42	945.35379	65.65307	10.13049	821.693	1072.812
50 microns	42	925.39381	59.25581	9.14337	837.542	1086.200
75 microns	42	905.40386	54.71734	8.44307	820.691	1032.415
100 microns	42	906.22724	51.51678	7.94921	838.096	1025.777
Total	168	920.59467	59.80642	4.61417	820.691	1086.200

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	45075.637	3	15025.212	4.462	.005
Within Groups	552251.266	164	3367.386		
Total	597326.902	167			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	25 microns	50 microns	19.95998	12.66301	.701
		75 microns	39.94993	12.66301	.011
		100 microns	39.12655	12.66301	.014
	50 microns	25 microns	-19.95998	12.66301	.701
		75 microns	19.98995	12.66301	.698
		100 microns	19.16657	12.66301	.792
	75 microns	25 microns	-39.94993	12.66301	.011
		50 microns	-19.98995	12.66301	.698
		100 microns	-.82338	12.66301	1.000
	100 microns	25 microns	-39.12655	12.66301	.014
		50 microns	-19.16657	12.66301	.792
		75 microns	.82338	12.66301	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the interface of dentin –resin modified glass ionomer cement interface group (6 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
50 microns	28	886.84364	44.02111	8.31921	826.300	979.267
100 microns	28	906.93996	58.66901	11.08740	820.691	1024.445
150 microns	28	922.08196	56.52994	10.68315	851.060	1072.812
200 microns	28	934.19257	57.29134	10.82705	868.167	1086.200
250 microns	28	934.28339	64.13957	12.12124	822.740	1059.816
300 microns	28	939.22650	63.47002	11.99471	821.693	1041.901
Total	168	920.59467	59.80642	4.61417	820.691	1086.200

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	57322.272	5	11464.454	3.439	0.006
Within Groups	540004.63	162	3333.362		
Total	597326.902	167			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	50 microns	100 microns	-20.09632	15.43040	1.000
		150 microns	-35.23832	15.43040	.355
		200 microns	-47.34893	15.43040	.038
		250 microns	-47.43975	15.43040	.037
		300 microns	-52.38286	15.43040	.013
	100 microns	50 microns	20.09632	15.43040	1.000
		150 microns	-15.14200	15.43040	1.000
		200 microns	-27.25261	15.43040	1.000
		250 microns	-27.34343	15.43040	1.000
		300 microns	-32.28654	15.43040	.569
	150 microns	50 microns	35.23832	15.43040	.355
		100 microns	15.14200	15.43040	1.000
		200 microns	-12.11061	15.43040	1.000
		250 microns	-12.20143	15.43040	1.000
		300 microns	-17.14454	15.43040	1.000
	200 microns	50 microns	47.34893	15.43040	.038
		100 microns	27.25261	15.43040	1.000
		150 microns	12.11061	15.43040	1.000
		250 microns	-9.08214E-02	15.43040	1.000
		300 microns	-5.03393	15.43040	1.000

			Mean Difference (I-J)	Std. Error	Sig.
	250 microns	50 microns	47.43975	15.43040	.037
		100 microns	27.34343	15.43040	1.000
		150 microns	12.20143	15.43040	1.000
		200 microns	9.0821E-02	15.43040	1.000
		300 microns	-4.94311	15.43040	1.000
	300 microns	50 microns	52.38286	15.43040	.013
		100 microns	32.28654	15.43040	.569
		150 microns	17.14454	15.43040	1.000
		200 microns	5.03393	15.43040	1.000
		250 microns	4.94311	15.43040	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the surface of negative group (4 rows)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
25 microns	42	951.54883	71.30185	11.00211	804.539	1096.856
50 microns	42	938.61967	55.98681	8.63895	831.822	1089.067
75 microns	42	915.07845	50.37796	7.77349	808.377	1024.088
100 microns	42	911.78386	48.38801	7.46643	802.259	996.638
Total	168	929.25770	59.07619	4.55783	802.259	1096.856

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	45818.946	3	15272.982	4.664	.004
Within Groups	537010.419	164	3274.454		
Total	582829.366	167			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	25 microns	50 microns	12.92917	12.48705	1.000
		75 microns	36.47038	12.48705	0.024
		100 microns	39.76498	12.48705	0.01
	50 microns	25 microns	-12.92917	12.48705	1.000
		75 microns	23.54121	12.48705	0.367
		100 microns	26.83581	12.48705	0.199
	75 microns	25 microns	-36.47038	12.48705	0.024
		50 microns	-23.54121	12.48705	0.367
		100 microns	3.2946	12.48705	1.000
	100 microns	25 microns	-39.76498	12.48705	0.01
		50 microns	-26.83581	12.48705	0.199
		75 microns	-3.2946	12.48705	1.000

The mean difference is significant at the .05 level.

Descriptive maximum penetration from the interface of dentin – polyacid modified resin composite group (6 columns)

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
50 microns	28	896.13186	55.81603	10.54824	802.259	997.449
100 microns	28	932.00132	75.48501	14.26533	808.377	1096.856
150 microns	28	930.74018	54.06395	10.21713	804.539	1027.021
200 microns	28	937.79557	49.43755	9.34282	855.257	1032.879
250 microns	28	931.71914	60.96009	11.52037	838.027	1089.067
300 microns	28	947.15814	46.12507	8.71682	862.352	1044.488
Total	168	929.25770	59.07619	4.55783	802.259	1096.856

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	42179.941	5	8435.988	2.528	0.031
Within Groups	540649.424	162	3337.342		
Total	582829.366	167			

Multiple Comparisons

			Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	50 microns	100 microns	-35.86946	15.43961	.321
		150 microns	-34.60832	15.43961	.395
		200 microns	-41.66371	15.43961	.116
		250 microns	-35.58729	15.43961	.337
		300 microns	-51.02629	15.43961	.018
	100 microns	50 microns	35.86946	15.43961	.321
		150 microns	1.26114	15.43961	1.000
		200 microns	-5.79425	15.43961	1.000
		250 microns	.28218	15.43961	1.000
		300 microns	-15.15682	15.43961	1.000
	150 microns	50 microns	34.60832	15.43961	.395
		100 microns	-1.26114	15.43961	1.000
		200 microns	-7.05539	15.43961	1.000
		250 microns	-.97896	15.43961	1.000
		300 microns	-16.41796	15.43961	1.000
	200 microns	50 microns	41.66371	15.43961	.116
		100 microns	5.79425	15.43961	1.000
		150 microns	7.05539	15.43961	1.000
		250 microns	6.07643	15.43961	1.000
		300 microns	-9.36257	15.43961	1.000

			Mean Difference (I-J)	Std. Error	Sig.
	250 microns	50 microns	35.58729	15.43961	.337
		100 microns	-.28218	15.43961	1.000
		150 microns	.97896	15.43961	1.000
		200 microns	-6.07643	15.43961	1.000
		300 microns	-15.43900	15.43961	1.000
	300 microns	50 microns	51.02629	15.43961	.018
		100 microns	15.15682	15.43961	1.000
		150 microns	16.41796	15.43961	1.000
		200 microns	9.36257	15.43961	1.000
		250 microns	15.43900	15.43961	1.000

The mean difference is significant at the .05 level.

APPENDIX 6

Summary of elements quantity using EDS

Enamel Negative								
	Surface			Subsurface				
	1	2	3	1	2	3	4	5
C	15.89	16.44	17.84	36.92	36.16	32.95	34.94	32.64
O	41.44	38.67	38.55	44.59	43.57	41.74	36.11	37.75
F	0.37	0.50	0.50	0.32	0.26	0.19	0.36	0.53
Na	0.63	0.63	0.68	0.50	0.52	0.54	0.46	0.51
Mg	0.23	0.22	0.25	0.48	0.46	0.49	0.25	0.25
Al	0.19	0.03	0.04	0.83	0.80	0.49	0.07	0.06
Si	0.53	0.00	0.00	4.53	4.35	2.56	0.09	0.06
P	14.37	15.01	14.54	4.17	4.85	7.21	9.56	9.82
Ca	26.35	28.50	27.61	7.68	9.05	13.85	18.16	18.38

Enamel Positive								
	Surface			Subsurface				
	1	2	3	1	2	3	4	5
C	28.05	29.16	27.38	40.68	38.03	37.36	29.36	25.20
O	40.50	41.51	42.63	39.13	39.45	39.08	42.00	42.42
F	1.89	2.20	1.94	1.23	1.46	1.22	1.36	1.60
Na	0.59	0.58	0.58	0.48	0.48	0.47	0.57	0.63
Mg	0.19	0.20	0.24	0.38	0.46	0.49	0.31	0.19
Al	0.56	1.02	1.04	0.33	0.34	0.27	0.22	0.21
Si	0.81	1.55	1.57	0.46	0.52	0.48	0.19	0.06
P	10.02	8.95	9.36	6.43	7.18	7.64	9.20	10.23
Ca	17.40	14.83	15.27	10.88	12.10	13.01	16.79	19.46

Enamel RMGC								
	Surface			Subsurface				
	1	2	3	1	2	3	4	5
C	27.41	16.75	15.66	35.13	31.75	28.48	28.62	26.47
O	45.94	48.18	48.50	42.46	41.32	41.90	41.46	40.48
F	3.84	1.47	1.53	2.77	1.35	1.14	1.81	1.66
Na	0.62	0.79	0.76	0.54	0.60	0.63	0.57	0.58
Mg	0.21	0.23	0.21	0.31	0.30	0.30	0.30	0.27
Al	2.33	0.15	0.14	1.26	0.36	0.32	0.54	0.54
Si	2.20	0.00	0.00	1.27	0.28	0.20	0.39	0.30
P	7.01	12.87	13.06	5.77	8.82	9.90	9.06	9.93
Ca	10.46	19.56	20.15	10.51	15.17	17.13	17.18	19.77
Cl					0.24		0.21	
K					0.16		0.17	

Enamel PMRC								
	Surface			Subsurface				
	1	2	3	1	2	3	4	5
C	19.07	15.02	18.03	29.36	24.14	24.98	22.48	25.49
O	43.42	45.06	43.91	42.05	45.59	45.98	43.06	40.30
F	2.67	0.92	0.61	3.12	0.93	0.67	2.56	1.69
Na	0.69	0.66	0.57	0.70	0.64	0.63	0.75	0.64
Mg	0.15	0.23	0.21	0.35	0.44	0.47	0.32	0.29
Al	2.05	0.38	0.34	1.49	0.18	0.15	1.10	0.60
Si	3.05	0.64	0.58	2.03	0.36	0.35	1.31	0.61
P	10.67	13.56	13.08	7.55	10.01	9.81	10.08	10.39
Ca	18.24	23.54	22.67	13.35	17.71	16.95	18.34	19.99

Dentin negative								
	Surface			Subsurface				
	1	2	3	1	2	3	4	5
C	30.36	30.60	29.20	32.14	30.47	29.09	33.86	31.91
O	44.30	45.72	46.43	44.78	43.36	45.10	45.97	48.19
F	0.12	0.15	0.21	0.24	0.20	0.49	0.14	0.25
Na	0.49	0.54	0.56	0.62	0.70	0.67	0.66	0.72
Mg	0.27	0.24	0.23	0.34	0.36	0.36	0.49	0.54
Al	0.95	0.80	1.04	0.56	0.17	0.25	0.32	0.31
Si	0.66	0.15	0.47	1.70	0.54	0.99	1.22	1.26
P	7.74	7.31	6.22	7.31	9.02	8.74	7.01	7.12
Ca	15.11	14.49	15.64	12.32	15.17	14.32	10.35	9.73

Dentin positive								
	Surface			Subsurface				
	1	2	3	1	2	3	4	5
C	36.2867	37.5400	35.9767	36.8400	36.8833	37.9100	38.1933	37.6833
O	46.5733	46.5767	47.9700	50.1167	47.1467	47.7333	46.9067	47.6167
F	2.0300	2.4167	2.0867	1.7333	2.9333	3.1300	2.3033	2.9867
Na	0.6067	0.6033	0.6233	0.5933	0.7200	0.6967	0.6200	0.6033
Mg	0.1367	0.1433	0.1600	0.2767	0.2800	0.2600	0.2400	0.2467
Al	0.7233	0.6567	0.6867	0.6333	0.5200	0.4700	0.6433	0.4467
Si	0.3300	0.2467	0.4667	2.0200	0.7400	0.3767	0.7833	0.5200
P	5.5333	5.0533	5.0900	3.4700	4.7333	4.2700	4.5033	4.2500
Ca	7.7800	6.7633	6.9400	4.3167	6.0433	5.1533	5.8067	5.6467

Dentin RMGC								
	Surface			Subsurface				
	1	2	3	1	2	3	4	5
C	36.84	35.81	36.25	37.31	36.61	37.58	34.25	35.42
O	43.63	44.58	45.26	44.09	46.41	46.14	44.08	44.73
F	3.59	1.07	1.01	3.44	1.48	1.14	2.49	2.44
Na	0.58	0.64	0.64	0.65	0.75	0.75	0.72	0.71
Mg	0.29	0.28	0.26	0.40	0.47	0.49	0.37	0.39
Al	2.14	0.85	0.78	1.62	0.48	0.32	1.12	1.30
Si	1.87	0.26	0.24	1.20	0.26	0.27	0.34	0.69
P	4.45	6.70	6.30	4.51	5.63	5.40	6.57	5.82
Ca	6.61	9.82	9.26	6.79	7.93	7.91	10.07	8.50

Dentin PMRC								
	Surface			Subsurface				
	1	2	3	1	2	3	4	5
C	35.87	34.54714	36.45571	36.614	34.266	33.858	33.3775	28.905
O	40.72833	41.96143	43.32857	43.798	44.476	44.44	40.035	39.9825
F	3.055	0.432857	0.395714	3.036	0.954	0.738	1.445	1.57
Na	0.595	0.552857	0.55	0.696	0.658	0.634	0.595	0.535
Mg	0.178333	0.257143	0.224286	0.542	0.512	0.506	0.495	0.365
Al	2.438333	0.734286	0.782857	1.162	0.352	0.206	0.6325	0.9525
Si	1.913333	0.051429	0.047143	1.332	0.54	0.436	0.62	0.92
P	5.375	7.774286	6.884286	5.052	6.508	6.908	8.4175	8.9225
Ca	9.846667	13.66143	11.31	7.768	11.734	12.274	14.3825	17.605
S		0.19	0.15					0.63
Cl								0.09
K								0.25

VITAE

Assistant Professor Dr. Anchana Siriyananda Panichuttra, aged 39, was born on 26th of January, 1963. She graduated from Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand in 1987. After few months of practicing Dentistry, she furthered her study in a two-years program of Endodontics at New York University, School of Dentistry, USA. From 1987 to 1989. In 1990, she also received Master of Science in Dental Materials from the same University. After graduation from USA, Dr Anchana has obtained teaching position in Department of Operative Dentistry, Chulalongkorn University in 1991. At present, she is full time Faculty teaching in both undergraduated and graduated student in the field of Endodontics, her current status is Assistant professor.

Since 1996 till Present, Dr Anchana has enrolled the PhD. Program in Oral Biology at Chulalongkorn University. Her Dissertation topics is " Effect of Fluoride Released from Restorative Materials on Hardness of Enamel and Dentin".

Dr Anchana is married to Dr. Rajapas Panichuttra, private Practice in Prosthodontiics, with 2 children Ranch aged of 8 and Nanun aged of 5.

For professional activities, not only members of numerous dental societies of Thailand, she is active as a Registrar of Endodontics Society of Thailand.