

I. 13-15).
가
. Gottlieb

Orban¹⁶⁾

가, , , ,
가,
17-19). 1976

가 1) 30 Baker Seymour²⁰⁾

Murray²¹⁾

2-7). 가
. Ericsson Lindhe²²⁾

8% 50 100%
8). Gillette Van House²³⁾

가
. Benejee²⁴⁾

9)
10).
, , ,
, , ,
25-29).
11.12). , , ,
30-
33).

34,35)

가

(Pocket Depth)

25g

가

(Width of Attached

36,37)

Gingiva)

가

38-

(Gingival Recession)

40)

가

41)

42)

가

(Cervical Abrasion)

가

가

가

(Distance of Frenum)

가

가

(Types of Frenum)

II.

- Type A :

- Type B :

가 2mm

1.

- Type C :

가

가 18

78

2)

218

Windows SPSS ver. 8.0(SPSS Inc., USA)

1683

150

68

38.8

Chi - Squaer test

(mid - buccal surface)가

one - way ANOVA test

Sheffe test

2.

1)

III.

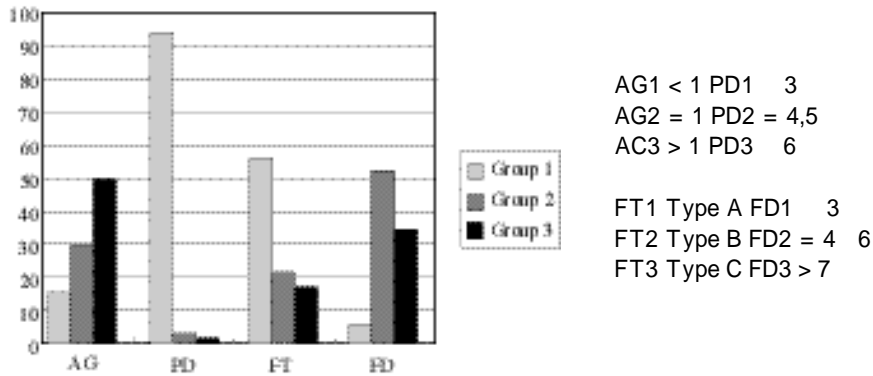


Figure 1. Attached gingiva(AG), Pocket depth(PD), Frenum types(FT), Distance of frenum(FD)

Table 1. Mean value of clinical parameters according to age

Age(G)	NP	NT	PD	AG	GR(%)	CA(%)
18 - 24(1)	21	166	1.83	1.69	0.20(14)	0.06(4)
25 - 34(2)	63	498	2.02	1.95	0.38(24)	0.12(8)
35 - 44(3)	68	525	1.97	1.75	1.08(54)	0.46(18)
45 - 54(4)	45	340	2.08	1.67	1.01(59)	0.27(14)
55 - 78(5)	21	154	2.16	1.53	0.97(54)	0.57(31)
Total	218	1683	2.01	1.77	0.76(43)	0.29(14)

* NP = number of patients, NT = number of teeth, PD = pocket depth
 AG = attached gingiva, GR= gingival recession, CA = cervical abrasion

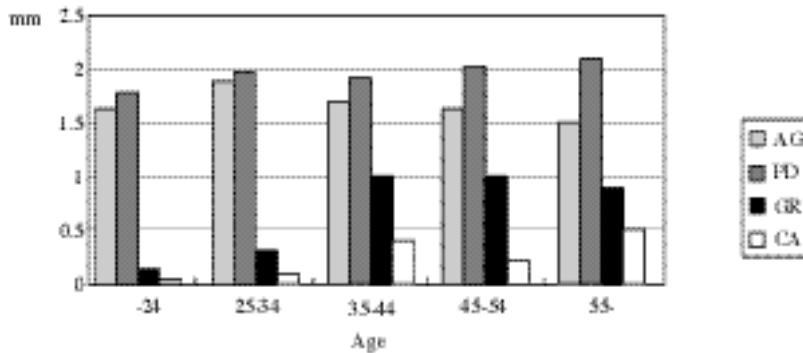


Figure 2. Mean clinical parameters according to age

		2.01mm	3mm	1623
1.		96%, 4	5mm	51
		3%	6mm	9
218	1683	1%	.	
		1.77mm	1mm	291

17%, 1mm 523
 31% 1mm 869 가 5 2.16mm 가
 52% 2mm
 0.76mm 43% 2 1.95mm 가
 0.29mm 3
 14% (Table 1, 2, 3). 가 (Table 1, Figure 2).
 46%가
 가 449 2)
 58%, 가 2mm 150 68
 가 176 23%
 가 2.03mm, 1.77mm 1.97mm,
 152 19% 1.77mm
 3mm 가 63 8%, 4 6mm가 426 0.82mm, 46%
 55% 7mm 288 37% 0.62mm, 35%
 (Figure 1).

(Table 2, Figure 3).

1)
 24 (1) 21 , 25 34 (2) 3)
 63 , 35 44 (3) 68 , 45 54 (4 1 1.87mm
) 45 55 (5) 21 가 2

Table 2. Mean value of clinical parameters according to sex

Sex(G)	NP	NT	PD	AG	GR(%)	CA(%)
M(1)	150	1167	2.03	1.77	0.82(46)	0.30(14)
F(2)	68	516	1.97	1.77	0.62(35)	0.27(13)

* NP = number of patients, NT = number of teeth, PD = pocket depth
 AG = attached gingiva, GR= gingival recession, CA = cervical abrasion

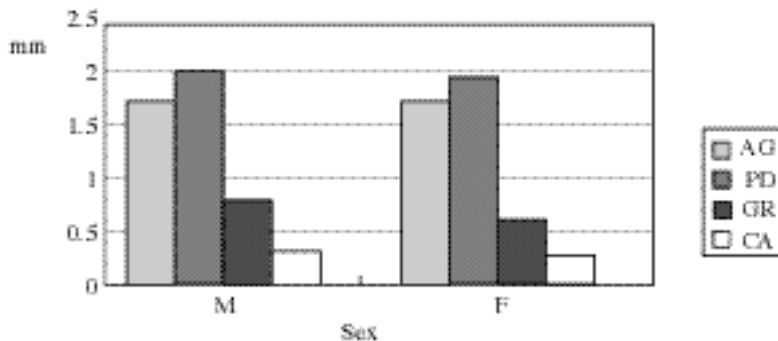


Figure 3. Mean clinical parameters according to sex

Table 3. Mean value of clinical parameters according to tooth position

Age(G)	NP	NT	PD	AG	GR(%)	CA(%)
14(1)	211	2.00	2.48	0.92(46)	0.37(15)	62
15(2)	208	2.09	2.45	0.69(40)	0.24(11)	36
24(3)	209	2.07	2.27	0.85(47)	0.32(13)	59
25(4)	207	2.19	2.14	0.54(33)	0.19(9)	41
34(5)	214	1.87	0.95	0.92(48)	0.37(17)	73
35(6)	212	2.02	1.27	0.55(34)	0.22(12)	12
44(7)	212	1.87	1.19	0.89(48)	0.36(18)	75
45(8)	210	1.98	1.42	0.73(42)	0.26(14)	10
Total	1683	2.01	1.77	0.76(43)	0.29(14)	47

* F = presence of frenum

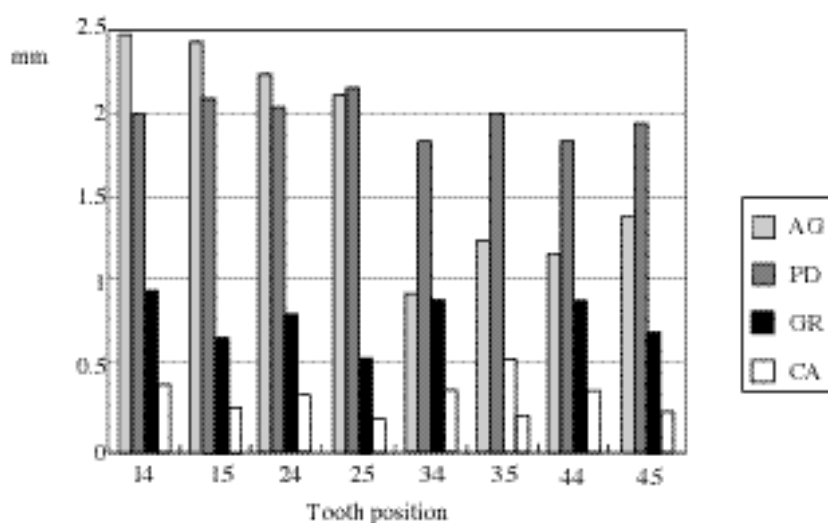


Figure 4. Mean clinical parameters according to tooth position

Table 4. Prevalence of gingival recession and cervical abrasion by age(* : p<0.05)

	- 24(1)	25 - 34(2)	35 - 44(3)	45 - 54(4)	55 - (5)	sig.
GR	14	24	54	59	54	.000*
CA	4	8	18	14	31	.000*

Table 5. Severity of gingival recession and cervical abrasion by age(* : p<0.05)

	- 24(1)	25 - 34(2)	35 - 44(3)	45 - 54(4)	55 - (5)	sig.
GR	0.20	0.38	1.08	1.01	0.97	.000*
CA	0.06	0.12	0.46	0.27	0.57	.000*

Table 6. Prevalence and Severity of gingival recession and cervical abrasion by sex(* : p<0.05)

	Prevalence(%)			Severity(mm)		
	M	F	Sig.	M	F	Sig.
GR	46	35	.000*	0.82	0.62	.000*
CA	14	13	.599	0.30	0.27	.439

Table 7. Prevalence and Severity of gingival recession and cervical abrasion by upper and lower arch(* : p<0.05)

	Prevalence(%)			Severity(mm)		
	M	F	Sig.	M	F	Sig.
GR	42	43	.571	0.75	0.77	.686
CA	12	15	.055	0.28	0.30	.573

Table 8. Prevalence and Severity of gingival recession and cervical abrasion by right and left side(* : p<0.05)

	Prevalence(%)			Severity(mm)		
	M	F	Sig.	M	F	Sig.
GR	44	41	.147	0.81	0.71	.078
CA	15	13	.354	0.31	0.28	.390

Table 9. Prevalence and Severity of gingival recession and cervical abrasion by 1st and 2nd pre-molars(* : p<0.05)

	Prevalence(%)			Severity(mm)		
	1st	2nd	Sig.	1st	2nd	Sig.
GR	47	37	.000*	0.90	0.63	.000*
CA	16	12	.008*	0.36	0.23	.001*

2.00mm . 2. 가
 2.00mm
 1.00mm 1
 0.95mm 가 . 가
 1 가 35 44 가
 2
 (Table 3, Figure 4). (p<0.05).
 35 44 가 가

Table 10. Prevalence and Severity of gingival recession and cervical abrasion by probing depth(* : p<0.05)

	Prevalence(%)				Severity(mm)			
	3	4 or 5	6	Sig.	3	4 or 5	6	Sig.
GR	43	37	44	.750	0.77	0.61	0.56	.499
CA	14	8	0	.214	0.30	0.14	0.00	.222

Table 11. Prevalence and Severity of gingival recession and cervical abrasion by attached gingiva(* : p<0.05)

	Prevalence(%)				Severity(mm)			
	<1(1)	=1(2)	>1(3)	Sig.	<1(1)	=1(2)	>1(3)	Sig.
GR	56	46	35	.000*	1.11	0.87	0.58	.000*
CA	16	17	11	.007*	0.40	0.35	0.23	.002*

Table 12. Prevalence and Severity of gingival recession and cervical abrasion by absence or presence of frenum (* : p<0.05)

	Prevalence(%)			Severity(mm)		
	Ansemce	Presence	Sig.	Absence	Presence	Sig.
GR	39	47	.001*	0.67	0.87	.000*
CA	14	14	.824	0.30	0.29	.878

Table 13. Prevalence and Severity of gingival recession and cervical abrasion by frenum types(* : p<0.05)

	Prevalence(%)				Severity(mm)			
	Atype	Btype	Ctype	Sig.	Atype	Btype	Ctype	Sig.
GR	46	47	49	.785	0.88	0.85	0.86	.946
CA	14	16	9	.112	0.30	0.34	0.20	.260

Table 14. Prevalence and Severity of gingival recession and cervical abrasion by distance of frenum(* : p<0.05)

	Prevalence(%)				Severity(mm)			
	3(1)	4 - 6(2)	7 3	Sig.	3(1)	4 - 6(2)	7 (3)	Sig.
GR	60	46	45	.076	1.46	0.82	0.80	.000*
CA	16	14	13	.804	0.48	0.27	0.28	.166

45 54
가

가 55

(p<0.05)(Table 4, 5).

($p < 0.05$).

($p > 0.05$) (Table 6).

34,35).

($p > 0.05$),

2

1

($p < 0.05$) (Table 7, 8, 9).

9,14).

42)

($p > 0.05$),

($p < 0.05$) (Table 10, 11).

($p < 0.05$)

($p > 0.05$)

가

가

24

2mm

($p < 0.05$)

43 - 46)

가

1mm

($p < 0.05$).

가

가

()

($p > 0.05$) (Table 12, 13, 14).

IV.

1 가

2

가

가

43)

가

가

가

1mm

11,12).

가 가
1998

2

1
41)

가

Tenenbaum⁵³⁾

35 44
가
가

가

가

45

47) 가 150
68 . 1967
Gorman⁴⁸⁾

1
1

Kitchin⁴⁹⁾ Brown⁵⁰⁾

51)

가

가 3mm

가

가

3mm

가

가

52)

43)

가

53 - 55) 1 가 2

가

1 가

V.

- of oral soft and hard tissue lesions related to mechanical tooth - cleaning procedures: *Comm Dent Oral Epidemiol*: 1976; 4: 77 - 83.
10. Stoner J, Mazadysama S: Gingival recession in the lower incisal region of 15 - year - old subjects: *J Periodontol*: 1980; 51: 74 - 76.
 11. Wennström JL: Mucogingival therapy: *Ann Periodont*: 1996; 1: 671 - 701.
 12. Wilson R: Marginal tissue recession in general practice: A preliminary study: *Int J Periodont Rest Dent*: 1985; 5: 9.
 13. Sandholm L, Niemi ML, Ainamo J: Identification of soft tissue brushing lesions: A clinical and scanning electron microscopic study: *J Clin Periodontol*: 1982; 9: 397 - 401.
 14. Vekalahti M: Occurrence of gingival recession in adults: *J Periodontol*: 1989; 60: 599 - 602.
 15. Merritt AA: Hyperemia of the dental pulp caused by gingival recession: *J Periodontol*: 1933; 4: 30.
 16. Gottlieb B, Orban B: *Biology and pathology of the tooth and its supporting system*: New York, McMillan: 1938; 32.
 17. Gargulio WB, Wentz FM, Orban B: Dimensions and relation of dentino - gingival junction in humans: *J Periodontol*: 1961; 32: 261.
 18. Williams CHM: Investigation concerning the dentition of the Eskimos of Canadian Eastern Arctic: *J Periodontol*: 1943; 14: 34.
 19. Glickman I: *Clinical Periodontology*: 3rd ed. London: 101.
 20. Baker DL, Seymour GJ: The possible pathogenesis of gingival recession: *J Clin Periodontol*: 1976; 3: 208 - 219.
 21. Murray JJ: Gingival recession in tooth types in high fluoride and low fluoride areas: *J Periodontol Res*: 1973; 8: 243 - 251.
 22. Ericsson I, Lindhe J: Recession in sites with inadequate width of keratinized gingiva: An experimental study in dogs: *J Clin Periodontol*: 1984; 11: 95 - 103.
 23. Gillette WB, Van House RL: Effect of improper oral hygiene procedure: *J Am Dent Assoc*: 1980; 10: 476 - 480.
 24. Benejee KL: Gingival recession: *J Indian Dent Assoc*: 1968; 40: 271.
 25. Stillman PR: Early clinical evidence of disease in the gingiva and pericementum: *J Dent Res*: 1921; 3: 25.
 26. Trott JR, Love B: An analysis of localized gingival recession in 766 Winnipeg High School students: *Dent Pract Dent Res*: 1966; 16: 209 - 213.
 27. Winder RV: Gingival recession of mandibular incisors: *J Wis State Dent Soc*: 1971; 47: 339.
 28. Mellors NW, Hermas FW: Investigation of neuropathologic manifestations of oral tissues: The psychosomatic background of certain oral manifestations: *Am J Orthod Oral Surg*: 1947; 33: 812.
 29. Stone M: Case report of psychosomatic factors in the etiology of gum recession: *N. Y. Univ Dent*: 1948; 7: 33.
 30. Arnim S, Blackburn EM: Dentifrice abrasion: Report of a case: *J Periodontol*: 1961; 32: 43 - 48.
 31. Breitenmoser J, Mörmann W,

- Mühlemann HR: Damaging effects of toothbrush bristle end form on gingiva: J Periodontol: 1979; 50: 212 - 216.
32. Epstein S, Tainter ML: The relationship of particle size and other properties of dentifrice ingredients to tooth brush abrasion of enamel: J Dent Res: 1943; 22: 335 - 338.
33. Hirshfeld I: Toothbrush trauma recession: A clinical study: J Dent Res: 1931; 11: 61 - 63.
34. Baelum V: Pattern of periodontal breakdown in adult Tanzanians: Scan J Dent Res: 1987; 95: 221 - 228.
35. Loe H, erud , Boysen H: The natural history of periodontal disease in man: prevalence, severity and extent of gingival recession: J Periodontol: 1992; 63: 489 - 495.
36. Van Palenstein Helderman WH,

- Lembariti BS, van der Weijden GA, van't Hof MA: Gingival recession and its association with calculus in subjects deprived of prophylactic dental care: *J Clin Periodontol*: 1998; 25: 106 - 111.
37. Khocht A, Simon G, Person P, Denepitiya JL: Gingival recession in relation to history of hard toothbrush use: *J Periodontol*: 1993; 64: 900 - 905.
 38. Ainamo J, Löe H: Anatomical characteristics of gingiva: A clinical and microscopic study of the free and attached gingiva: *J Periodontol*: 1966; 37: 5 - 13.
 39. Bowers G: A study of the width of attached gingiva: *J Periodontol*: 1963; 34: 201 - 209.
 40. Lang NP, Löe H: The relationship between the width of keratinized gingiva and gingiva health: *J Periodontol*: 1972; 43: 623 - 627.
 41. : : : 1998; 28: 785 - 794.
 42. , , , : : : 1995; 25: 459 - 468.
 43. , , , : : : 1997; 27: 235 - 245.
 44. , , : 20 : : : 1998: 28: 517 - 521.
 45. Okamoto H, Yoneyama T, Lindhe J, Haffajee A, Socransky S: Methods of evaluating periodontal disease data in epidemiological research: *J Clin Periodontol*: 1988; 15: 430 - 439.
 46. Yoneyama T, Okamoto H, Lindhe J, Socransky S, Haffajee A: Probing depth, attachment loss and gingival recession: Finding from a clinical examination in Ushiku, Japan: *J Clin Periodontol*: 1988; 15: 581 - 591.
 47. Caranza FA: *Glickman's clinical periodontology 7th ed.*: The W. B. Saunders co.: 1990; 302.
 48. Gorman WJ: Prevalence and etiology of gingival recession: *J Periodontol*: 1967; 38: 316 - 322.
 49. Kitchin PC: The prevalence of tooth exposure and the relation of the extent of such exposure to the degree of abrasion in different age classes: *J Dent Res*: 1941; 20: 565 - 581.
 50. Brown LJ, Oliver RC, Löe H: Evaluating periodontal status of US employed adults: *J Am Dent Asso*: 1990; 121: 226 - 232.
 51. , : : : 1991; 21: 303 - 322.
 52. Ervin JC, Bucher EM: Prevalence of tooth root exposure and abrasion among dental patients: *Dent Items Interest*: 1944; 66: 760 - 769.
 53. Tenenbaum H: A clinical study: Comparing the width of attached gingiva and the

prevalence of gingival recession: J Clin Periodontol: 1982; 9: 86 - 92.

54. Källestål C, Uhlin S: Buccal attachment loss in Swedish adolescents: J Clin Periodontol: 1992; 19: 485 - 491.

55. Joshipura KJ, Kent RL, DePaola PF: Gingival recession: Intra - oral distribution and associated factors: J Periodontol: 1994; 65: 864 - 871

The Effects of Clinical Parameters on Gingival Recession and Cervical Abrasion

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Gingival recession is exposure of the root surface with apical shift in the position of gingiva. The incidence of gingival recession is 8% in children and 100% after the age of 50. Recession tends to be found in patients with healthy gingiva, but more frequently found in patients with periodontal disease, and it often causes mucogingival defects. Buccal surface of premolar is the area not only for severe gingival recession and cervical abrasion, but also the area of numbers of buccal frenum and less keratinized gingiva. Therefore, the goal of this study was to observe the patients with periodontitis and examine whether there are clinical relations between gingival recession and cervical abrasion of premolar and other factors related with the condition of periodontal health.

Generally healthy 218 patients who had periodontal disease such as gingivitis and periodontitis, aged between 18 and 78, were examined for depth of periodontal

pocket, width of attached gingiva, gingival recession, cervical abrasion, and frenum of mid - buccal surface of premolar at the Department of Periodontics in Dankook University Dental Hospital and following is the result.

- 1.....The average gingival recession and cervical abrasion of premolar with periodontal disease was 0.76mm and 0.29mm and each has 43% and 14% of incidence. Also the width of attached gingiva of mid - buccal surface was 1.77mm. The average periodontal pocket depth is 2.0mm and 47% of frenum were related. The frenum more frequently seen was narrow single shaped frenum, and the interdistance of the frenum was mostly over 4mm.
2.With statistical significance($P<0.05$), the incidence of gingival recession increased with age and was related much more with female than male, the first premolar than the second premolar, and with narrow attached gingiva and frenum.
3.With statistical significance($P<0.05$), the incidence of cervical abrasion increased with age and was related with the area of the first premolar and narrow attached gingiva, but the sexual and frenum differences were not statistically significant ($P>0.05$).
- 4.....The severity of gingival recession increased with age and was more related with female than male, the first premolar than the second premolar. And the area of narrow attached gingi -

va and frenum showed more gingival recession and the distance of frenum was more highly related than shape, and they were statistically significant ($P < 0.05$).

5.With statistical significance ($P < 0.05$), the severity of cervical abrasion increase with age and was observed at the first premolar and narrow attached gingiva. But the sexual and frenum differences were not statistically significant ($P > 0.05$).