

I.

가

5, 8).

1-3)

8).

4, 5)

가 가

6, 7).

5, 8).

5).

9-12.)

1964 Bowers가¹³⁾

Lang

Löe 14)

가

15-19)

가

* 1997

Gottegen ²⁰⁾ 1954

25g

. 1mm

0.5mm

(3)

II.

Type A :

Type B :

가 2mm

Type C :

가

1.

173

(4)

가

가

가

가

42

20 가 17 ,

. 1mm

0.5mm

30 58 , 40 57 , 50 34 , 60 7

(5)

가

2.

(1)

3.

1mm

0.5mm

(2)

가

Table 1. Width of keratinized gingiva for

Tooth No.	Mean(mm)	Std. Deviation
31	4.44	1.35
32	4.64	1.39
33	3.47	1.34
34	2.55	0.99
35	2.91	0.99
36	3.33	0.89
37	3.21	0.93
41	4.37	1.29
42	4.61	1.25
43	3.36	1.28
44	2.54	0.99
45	2.99	1.03
46	3.43	0.85
47	3.12	0.96
Total	3.50	1.33

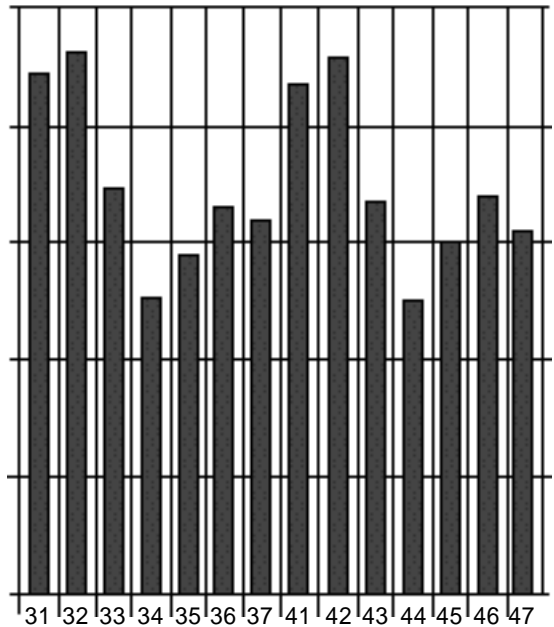
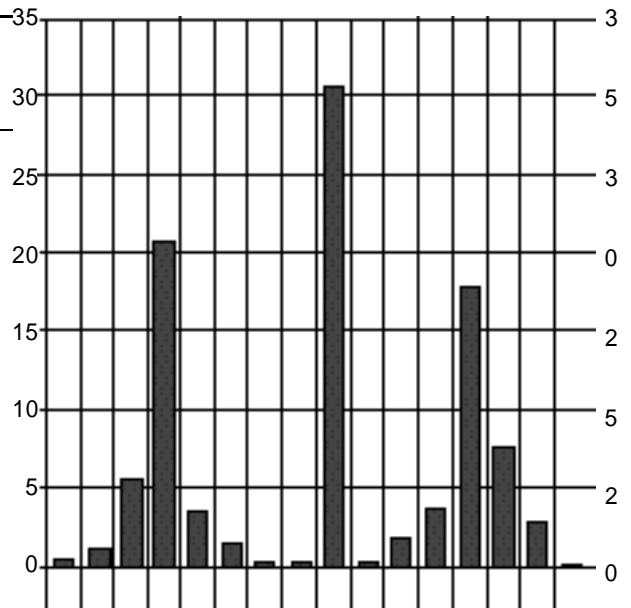


Table 2. Frequencies of frenum at the mandibular

Position of frenum (Tooth No)	Frequency	Percent
45	3	0.5
44 - 45	7	1.2
44	31	5.6
43 - 44	114	20.6
43	20	3.6
42 - 43	9	1.6
42	2	0.3
41 - 42	2	0.3
31 - 41	169	30.6
31 - 32	3	0.5
32 - 33	11	1.9
33	22	3.9
33 - 34	98	17.7
34	42	7.6
34 - 35	16	2.9
35	2	0.3
Total	551	100.0



ANOVA test Scheffe test

mm

Table 3. Frequency of Types of frenum at the three sites(anterior, right and left buccal)

Location of frenum	Type of Frenum			Total
	A	B	C	
Right	49	32	109	190
Midline	154	11	6	171
Left	36	31	123	190
Total	239	74	238	551

Type A; single narrow frenum. Type B; single wide frenum. Type C; double or triple frenum

Table 4. The width of keratinized gingiva from the end of frenum to the gingival margin at the three sites(anterior, right and left buccal)

Location of Frenum	Mean(mm)	Std. Deviation
Right	5.92	1.99
Midline	5.75	1.68
Left	5.64	1.92
Total	5.77	1.88

Table 5. The width of keratinized gingiva from the end of frenum to the gingival margin at the middle

Location of Frenum(Tooth No)	Mean(mm)	Std. Deviation
45	6.00	1.73
44	5.10	1.56
43	5.60	1.98
42	3.50	2.12
33	5.36	1.59
34	4.69	1.32
35	7.00	0.00
Total	5.11	1.60

III. ;4.37mm) 가 가
 1. 가 (;2.55mm,
 ;2.54mm)
 4.64mm, 4.61mm 가 가
 (;4.44mm, 1.39mm 가 가

Table 6. The mean width of keratinized gingiva from the end of frenum to the gingival margin for

	Mean(mm)	Std. Deviation
20	5.48	1.18
30	5.83	1.99
40	6.02	1.78
50	5.60	1.94
60	4.78	2.58

Table 7. Width of recession at the sites of frenum location

Location of Frenum(Tooth No)	Mean(mm)	N	Std. Deviation
45	1.00	2	0.00
44	2.00	16	1.03
43	2.00	7	0.82
42	2.00	2	0.00
33	2.67	3	1.15
34	2.33	30	1.06
35	1.00	1	0.00
Total	2.15	61	1.01

Table 8. Probing depth and gingival recession for the width of keratinized gingiva at the sites of

Distance to frenum(mm)	Probing depth(mm)	Recession(mm)
1	1.67 ± 0.58	0.00 ± 0.00
2	2.50 ± 1.91	1.50 ± 1.00
3	2.10 ± 0.74	2.20 ± 1.03
4	2.10 ± 0.72	1.85 ± 1.50
5	1.91 ± 0.72	1.02 ± 1.28
6	2.08 ± 0.95	0.62 ± 1.04
7	1.88 ± 0.59	0.50 ± 0.95
8	2.00 ± 0.00	0.33 ± 0.58
9	1.50 ± 0.71	0.00 ± 0.00
Total	1.98 ± 0.76	1.06 ± 1.29

0.85mm (Table 1).

Table 2

2.

77.9%

가
(22.1%)

Table 9. Correlation Test for probing depth, gingival recession and Width of keratinized gingiva

		Distance to frenum	Probing depth	Recession
Distance to frenum	Pearson Correlation	1.000	-.097	-.126**
	Sig.(2 - tailed)	.	.283	.004
	N	536	124	536
Probing depth	Pearson Correlation	-.097	1.000	.118
	Sig.(2 - tailed)	.283	.	.193
	N	124	124	124
Recession	Pearson Correlation	-.126**	.118	1.000
	Sig.(2 - tailed)	.004	.193	.
	N	536	124	536

** : Correlation is significant at the 0.01 level(2 - tailed)

Table 10. Amount of gingival recession for the types of frenum morphology

Type	Mean(mm)	Std. Deviaiton
A	0.90	1.38
B	1.62	1.65
C	1.05	1.37

Type A; single narrow of frenum. Type B; single wide frenum. Type C; double or triple frenum

가 30.6% 가 64.7% .
 20.6%
 4.
 가 .
 3. 가
 가 (2) 5mm
 (Table 4), 가
 551 A type
 239 43.2%, 5mm
 C type 237 (Table 5).
 40
 가 (Table 3). , 가
 (Table 6).
 (90.1%), 5.
 가 57.4%,

가

가 가

. Goldman²⁴⁾

가 가

, Glickman⁵⁾

5).

Gottegen ²⁰⁾ 1954

가 ²⁵⁾ , Gorman

가 ²⁶⁾

가 , 8%
50 100%

가 ²⁷⁾ 10
35% 가

20 가 Brown ²⁸⁾
19.7%가 가

²⁹⁾
3mm

가
가
가,

가

가

가

²⁹⁾ 1mm

가

가
가

78%

40

2.15mm

가
가 ANOVA Test

가

가

가
가 5mm
가

가 가
가 가

가

44.9% 가
47.4%, 52.1%
가
가
2.15 ± 1.01mm
가
6. 가
2.15mm , ,
1. 가

V.
가
173

가
7. 가

2. 가 77.9%
(22.1%)
가
30.6% 가
20.6%
8. 가
가
가

3. 가
551 가 43.4%,
가 237
VI.
가
57.4%, 64.7%
4. 가
5mm
가
5. 551 48.3%가
가

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- Abstract -

The width of keratinized gingiva and the frenum in mandible

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This study has been done to prove that keratinized gingiva is required for the periodontal health and to analyse the adequate width that is necessary. Until now, the study on frenum has been documented on changing its location. But the location or the formation of the frenum has not been reported. This experiment has used 173 patients from the department of periodontology of Dankook University to investigate the width of keratinized gingiva, the formation of the frenum and its location for the frequency. This study also looks into the relationship between the gingival recession and the structure of the frenum, and affects they have on periodontal health.

The width of the keratinized gingiva in the mandible has been found to be highest in the lateral incisor than in the central incisor. The width decreased from the canine to the first premolar until it reached the molar. The interproximal area of the mandibular frenum was 77.9%, which was greater than the frequency (22.1%) from the midline of the teeth. The highest frequency of frenum was at 30.6% in between the both central incisor then second greatest at 20.6% in between the right canine and the right first

premolar. Frenum was not found in between the second premolar and the distal area. In the morphology of the frenum, it was found that 43.4% out of 551 parts were found to be a single narrow frenum, and the double or triple ligamented form of the complex frenum were found in similar frequency of 237 parts, but the broad frenum was rarely frequent. The incisal area was popular mostly with the single narrow frenum, the left premolar area frequented 57.4%, and the right premolar frequented 64.7%. Because the distance between the frenum apex and the gingival margin measured to be about 5mm or greater, the frenum apex started in the mucogingival junction and not just below the keratinized gingiva.

In the 551 area investigated, 48.3% of gingiva showed recession, incisal area had recession the least at 44.9%, right buccal side at 47.4%, and right buccal side frequented the highest at 52.1%. The teeth that showed recession recessed at the average of 2.151.0.mm and the left canine showed the greatest amount of gingival recession.

In the investigation to find out if the keratinized gingiva and the gingiva recession had mutually related somehow, the width of keratinized gingiva showed no affect on the probing depth, but had affected in the gingiva recession.

This investigation showed that the gingival recession and the morphology of the frenum related in that, the single narrow frenum had recessed the least and the broad frenum recessed the most. With this analysis, a conclusion was drawn that the morphology of the frenum had affected in

the gingival recession.

Key words : Keratinized gingiva, frenum,
gingival Recession