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1) Oral environment

The Snyder test and the saliva/occult blood test were used.

The Snyder test (S. T. media, simple method) is a caries activity test which determines lactobacillus activity in the saliva. The test procedure involves having the subject suck on a throat stick for 1 min in order to collect saliva. The saliva is then cultured at 37℃. After 24, 48 and 72 hours of culturing, the color changes in the medium are examined. An evaluation is made according to changes in color of medium which contains Bromcresol green (BCG) as a pH indicator. A value below 4.2 on the BCG color chart indicates a positive, while a value above 4.2 is negative. Cultures which were evaluated to be positive after 24, 48 and 72 hours were scored as (+++), (++) and (+), respectively, while those still negative after 72 were scored as (−).

The occult blood test (Salivaster-Bld) is a test which involves determining blood derived mainly from the gingival tissue which is released into the saliva. The test procedure involves dipping the test paper in the hematemetic saliva for 2−3 seconds and then judging by comparing to the standard color change chart. The occult blood reaction is divided into 3 levels from low to high as follows, −, +, and ++.

2) Condition of the gingiva

Evaluation was carried out using 2 indices, PMA-1 and CPITN.

PMA-1 is a test in which the gingiva of the anterior teeth is divided into *p*apillary, *m*arginal and *a*ttached portions and the number of sites with gingivitis is determined to evaluate the severity of the gingivitis.

periodontal probe was used to score (0−4 points) the anterior teeth group for the upper and lower jaw and the left and right molar dentition group according to the following pattern,

76 1	67
76	1 67

The highest value obtained for each region was taken as a typical value.

3) Condition of dental plaque

The Quigley-Hein Plaque Index (Pl-I) was used to evaluate the condition of the dental plaque. The teeth examined were based on OHI-S.

Experimental Results

1. Snyder test

In the present study, the dental plaque condition was investigated after a semiconductor toothbrush was used over 3 weeks. The number of subjects for each evaluation for the experimental and control groups are shown in Table 3, while the changes in the Snyder test mean values of the two groups for each week are presented in Figure 2.

From these results, it was observed that caries activity in both groups determined by the

Table 3. Comparison of Snyder test scores at each observation week

Group			Before	1 W	2 W	3 W
Experimental	−	(N)	10	15	14	19
		(%)	31.3	48.4	48.3	70.4
	±	(N)	7	8	11	8
		(%)	21.9	25.8	37.9	27.6
	+	(N)	15	8	4	2
		(%)	46.8	25.8	13.8	2.0
	++	(N)	0	0	0	0
		(%)	0	0	0	0
	−	(N)	10	6	10	14
		(%)	35.7	21.4	37.0	51.9

The Community Periodontal Index of Treatment Needs (CPITN) is an index that was proposed by WHO in 1982 for investigating the actual conditions of periodontal disorders and to determine the degree of therapy required in local or regional areas. In this study, the WHO

Control	±	(N)	10	14	9	4
		(%)	35.7	50.0	33.4	14.8
	+	(N)	6	8	8	9
		(%)	21.4	28.6	29.6	33.3
	++	(N)	2	0	0	0
		(%)	7.2	0	0	0