Journal of Clinical Periodontology 1981: **8**: 239–248

Key words: *Clinical trial – plaque control – gingivitis – periodontitis – caries.*
Accepted for publication May 21, 1980

Effect of controlled oral hygiene procedures on caries and periodontal disease in adults

Results after 6 years

P. Axelsson and J. Lindhe

Department of Periodontology, School of Dentistry, University of Gothenburg, Sweden

Abstract. The present report describes the result of a clinical trial in which a group of adults have been maintained on a proper oral hygiene standard over a 6-year period. In 1971–72, 375 individuals were recruited to a test group and 180 to a control group. During the 6 years of trial, 65 persons from the test group and 34 controls were lost. The patients were divided into three age groups; I <35 years, II 36–50 years, III >50 years. The members of the test and control groups were first subjected to a *Baseline examination* which included assessments of oral hygiene, gingivitis, periodontal disease and caries. Following this examination all caries lesions were treated and ill-fitting dental restorations adjusted. Each patient was also given a detailed case presentation and a dental prophylaxis. The control group patients were not involved in any further dental health programs during the subsequent 6-year period. Once a year, however, they were recalled to a public dental health clinic for examination and received symptomatic dental treatment. The test group participants, on the other hand, were given a preventive treatment, repeated once every 2–3 months which included (1) instruction and practice in oral hygiene techniques and (2) meticulous prophylaxis.

The patients were re-examined 3 and 6 years after the baseline examination. At the *Follow-up examinations* the parameters studied at the *Baseline examination* were recorded again. The findings demonstrated that a preventive program which stimulates individuals to adopt proper oral hygiene habits may resolve gingivitis and prevent progression of periodontal disease and caries. Traditional dental care, on the other hand, did not prevent the progression of caries and periodontitis in adults.

A number of reports have been published showing that preventive measures directed towards control of dental plaque may successfully inhibit gingivitis and caries in schoolchildren (for review see Axelsson 1978). The results of longitudinal studies carried out in adults have also been presented which demonstrate the effectiveness of mechanical plaque control measures in the prevention of gingivitis and periodontal disease progression (e.g. Lövdal et al. 1961, Ramfjord et al. 1973, Lindhe & Nyman 1975, Knowles et al. 1979). In 1978, Axelsson & Lindhe reported data from a 3-year clinical trial showing that it is possible by regularly repeated tooth-cleaning instruction and prophylaxis to stimulate adults to adopt proper oral hygiene habits. They also demonstrated that individuals who maintained a proper oral hygiene standard during the 3-year period had negligible signs of gingivitis, showed no loss of periodontal tissue attachment and developed practically no caries lesions. A control group of age-matched individuals who during the same period did not receive preventive but merely symptomatic treatment suffered from gingivitis, lost periodontal tissue support and de-

0303-6979/81/030239-10 $02.50/0 ©1981 Munksgaard, Copenhagen

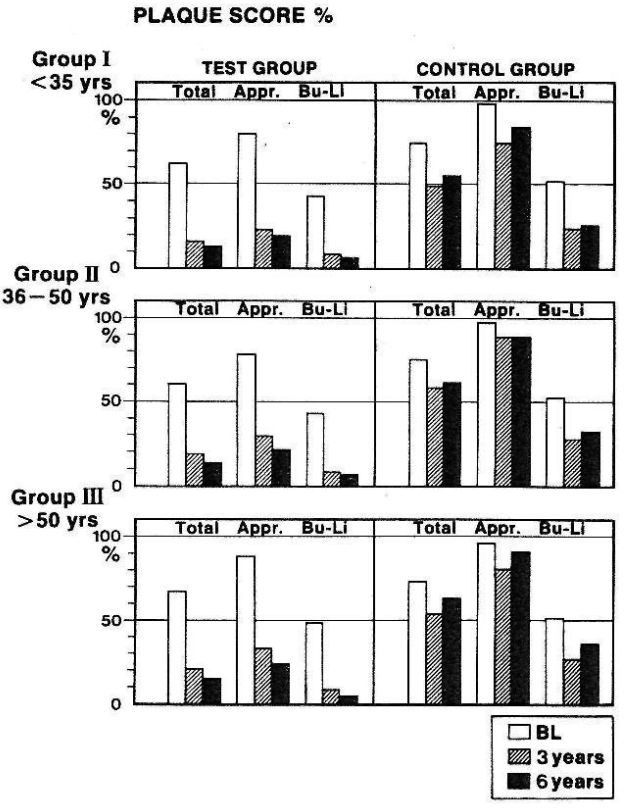

Fig. 1. Histogram describing the frequency distribution of tooth surfaces harboring plaque at the Baseline examination (open bars) and at the re-examinations 3 (hatched bars) and 6 (black bars) years later. In the control groups after 3 and 6 years of trial, there was a tendency towards lower plaque scores on buccal-lingual (Bu-Li) surfaces only. In the test groups the individual mean plaque scores were reduced from 60–70% (BL) to around 10–20% (3 and 6 years).

Das Histogramm beschreibt die Verteilung des Vorkommens von Zahnoberflächen mit adhärierender Plaque bei der Ausgangsuntersuchung (offene Stapel) und bei den Wiederholungsuntersuchungen nach 3 (gestrichelte Stapel) und nach 6 (schwarze Stapel) Jahren. In der Kontrollgruppe kann nur an den bukko-lingualen (Bu-Li) Oberflächen die Tendenz zum Vorkommen geringerer Bewertungseinheiten (scores) bei der Plaqueregistrierung beobachtet werden. In der Versuchsgruppe hingegen wird die Reduktion der individuellen Plaque-scores (Bewertungseinheiten) von 60–70% anlässlich der Ausgangsuntersuchung (BL) auf etwa 10–20% (3 und 6 Jahre später) konstatiert.

Histogramme représentant la distribution de fréquence des faces dentaires où la plaque était présente à l'Examen Initial (rectangles en blanc) et aux rappels, 3 ans (rectangles hachurés) et 6 ans (rectangles en noir) plus tard. Dans les groupes témoins, au bout de 3 ans et au bout de 6 ans d'expérience, les scores de la plaque tendaient à être moins élevés seulement sur les faces vestibulaires-linguales (Bu-Li). Dans les groupes expérimentaux, les scores individuels moyens de la plaque étaient réduits, de 60–70% (à l'examen initial=BL) à environ 10–20% (3 ans et 6 ans).

veloped several new as well as recurrent caries lesions. The present paper describes the results after 6 years of treatment.

Material and Methods

In 1971–72, 375 individuals were recruited to a test group and 180 to a control group. During the first 3 years of study, 51 individuals in the test group and 24 controls were lost. During the subsequent 3 years another 14 (test) and 10 (control) individuals were lost. This means that 310 test and 146 control patients remained in the program during the entire 6 years of trial (Table 1). For details regarding the patient material, age distribution, etc., the reader is referred to the paper by Axelsson & Lindhe (1978).

Baseline examination

The members of the test and control groups were first subjected to a *Baseline examination* which included assessments of oral hygiene, gingivitis, periodontal disease and caries.

Oral hygiene status. The teeth were stained with a disclosing solution. The presence or absence of continuous plaque in the cervical portion of

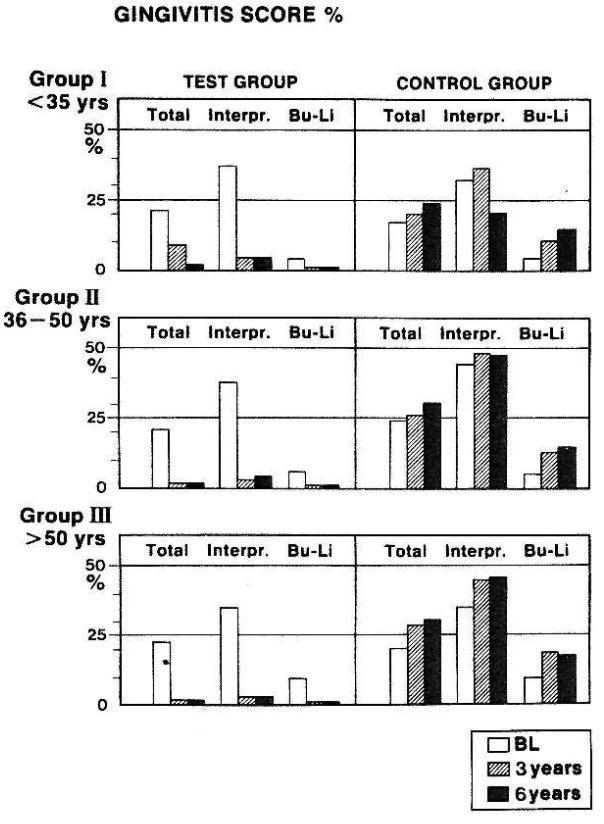

Fig. 2. Histogram showing the frequency distribution of inflamed gingival units in the test and control groups at the Baseline (open bars) and re-examinations (3 and 6 years; hatched and black bars). The individual mean (Total) figures describe unaltered gingival conditions in the control groups but marked improvements in the test groups during the trial.

Das Histogramm zeigt die Verteilung des Vorkommens entzündeter gingivaler Einheiten bei den Versuchs- und Kontrollgruppen anlässlich der Ausgangs- (offene Stapel) und der Wiederholungsuntersuchungen (3 und 6 Jahre später; gestrichelte und schwarze Stapel). Die individuellen (totalen) Mittelwerte beschreiben während der Versuchsperiode unveränderte Gingivaverhältnisse in den Kontrollgruppen, jedoch ausgesprochene Verbesserungen in den Versuchsgruppen.

Histogramme représentant la distribution de fréquence des sites gingivaux enflammés dans les groupes expérimentaux et témoins à l'Examen Initial (rectangles en blanc) et aux rappels, 3 ans (rectangles hachurés) et 6 ans (rectangles en noir) plus tard. Le nombre indiquant la moyenne individuelle (Total) met en évidence le fait qu'il n'y a pas de modifications dans l'état de la gencive dans les groupes témoins, mais qu'il y a une amélioration notable dans les groupes expérimentaux pendant l'étude.

Table 1. Number of participants in the various test and control groups. Only those individuals who participated in the 6-year *Follow-up examination* have been included in the analysis

Anzahl der Probanden in den verschiedenen Test- und Kontrollgruppen. Die Analyse enthält nur die Daten derjenigen Probanden, die an der 6 Jahre andauernden Wiederholungsuntersuchung teilgenommen haben

*Nombre de participants dans les différents groupes expérimentaux et témoins. Seuls les sujets ayant participé à l'*Examen de Rappel *de la sixième année ont été inclus dans l'analyse*

Age group (1972)	Test	Control	Sum
I<35 years	129	45	174
II 36–50 years	121	51	172
III 50 years	60	50	110
Sum	310	146	456

four surfaces of each tooth was determined. For each individual the frequency distribution of plaque-harboring tooth surfaces was calculated.

Gingival inflammation. The presence or absence of gingivitis (bleeding on probing) in four gingival units around each single tooth was assessed following probing. The percentage of bleeding gingival units was calculated for each individual.

Periodontal disease.

Pocket depth. The probing depths were measured with a flat graduated probe (Hu-Friedy®) at four

Table 2. Mean number of decayed and filled (DF-s) tooth surfaces in the test and control groups at the *Baseline examination* in 1972. $\bar{X}$ and S.E. (standard error of the mean)

Mittelwerte kariierter und mit Füllungen versehener (DF-s) Zahnoberflächen in den Versuchs- und Kontrollgruppen bei der Ausgangsuntersuchung 1972. $\bar{X}$ und S. E. (Standardirrtum der Mittelwerte)

*Nombre moyen de faces dentaires cariées et obturées (CO-f) dans les groupes expérimentaux et témoins à l'*Examen Initial *en 1972. $\bar{X}$ et erreur-type de la moyenne*

Group	Test	Control	Diff.
I	48.1 (3.9)	42.6 (3.1)	NS
II	56.3 (3.2)	49.1 (4.3)	NS
III	52.6 (2.8)	46.3 (4.1)	NS

surfaces around each tooth. For details regarding probing depth measurements see Axelsson & Lindhe (1978).

Attachment levels. The largest distance between the cemento-enamel junction or another well-defined landmark on the crown of the tooth and the bottom of the clinical pocket was assessed at all buccal, lingual, and mesial tooth surfaces using the graduated probe (Hu-Friedy).

Dental caries. One week before the clinical examination regarding caries four bite-wing radiographs were taken of each subject. At the clinical examination new plane mirrors and new Maillefer® explorers (No. 6) were used for each patient. The criteria used for a caries diagnosis were similar to those described by Koch (1967).

Following the clinical examination each tooth (t) and each surface (s) were recorded as either healthy (S), decayed or filled (DF) or missing. If a tooth or a surface was both filled and decayed, the caries lesion was regarded as recurrent caries and included in the recurrent caries pool.

Table 3a. Frequency distribution of probing depths > 3 mm at the various examination intervals. A=approximal, B=buccal, L=lingual, Tot=individual mean. Mol=molars, Premol=premolars, Inc=incisors

Häufigkeitsverteilung der Sondierungstiefen > 3 mm bei den verschiedenen Untersuchungsintervallen. A=approximal, B=bukkal. L=lingual, Tot=individueller Mittelwert. Mol=Molaren. Premol=Prämolaren, Inc.=Schneidezähne

Distribution de fréquence des profondeurs de sondage de plus de 3 mm aux différents examens. A=faces proximales, B=vestibulaires, L=linguales, Tot=moyenne individuelle., Mol=molaires, Premol=prémolaires, Inc=incisives. Baseline=Initial, 3 years=3 ans Groupes expérimentaux

	Baseline				Test group 3 years				6 years			
	A	B	L	Tot	A	B	L	Tot	A	B	L	Tot
Group I												
Mol	15	0	0	7.5	1.4	0	0	0.7	1.8	0	0.3	0.9
Premol	4.7	0	0	2.3	0.1	0	0	0	0.4	0	0	0.2
Inc	1.6	0	0	0.8	0.3	0	0	0.2	0.3	0	0.3	0.2
Tot	7.1	0	0	3.5	0.6	0	0	0.3	0.8	0	0.1	0.4
Group II												
Mol	29	0.6	1.1	15	1.4	0.1	0.3	0.8	0.6	0	0.3	0.4
Premol	14	0.1	0.8	7	0.5	0	0.1	0.3	0.2	0	0	0.1
Inc	5	0.1	0.9	3	0.5	0	0.2	0.3	0.1	0	0	0
Tot	16	0.3	0.9	8.3	0.8	0	0.2	0.5	0.3	0	0.1	0.2
Group III												
Mol	30	1.1	4	16.3	1.3	0	0	0.6	1.8	0.2	0.2	1.0
Premol	15	0	1.0	7.8	1.0	0	0	0.5	0.9	0	0	0.5
Inc	4	0	0.2	1.1	0	0	0	0	0.4	0	0	0.2
Tot	16	0.4	1.7	8.4	0.8	0	0	0.4	1.0	0.1	0.1	0.6

Treatment

Following the *Baseline examination* all caries lesions were treated and all ill-fitting dental restorations adjusted. Each patient was also given a detailed case presentation and a dental prophylaxis. Except for the case presentation and concomitant oral hygiene instructions, the control group patients were not involved in any dental health program during the subsequent 6-year period. Once a year after the *Baseline examination,* however, the control patients were recalled to a public dental health clinic for examination and to receive whatever dental treatment the dentist on duty found indicated. The test group participants, on the other hand, were given an entirely different type of treatment. Once every 2 months throughout the first 2 years and once every 3 months during the next 4 years these patients were given (1) instruction and practice in oral hygiene techniques and (2) a proper oral prophylaxis. The design of the prophylactic session was described in detail in our previous publication (Axelsson & Lindhe 1978).

Follow-up examinations

The patients were re-examined 3 and 6 years after the *Baseline examination.* At the *Follow-up examinations* the parameters studied at the *Baseline examination* were recorded again.

The methods used to study the observational error were described in our previous publication. Prior to the 6-year *Follow-up* examination, duplicate recordings were made regarding attachment levels and caries in 10 randomly selected patients.

Results

The results from the *Baseline examination* revealed only minor differences between the test and the age-matched control patients regarding

Table 3b. Frequency distribution of probing depths>3 mm at the various examination intervals. A=approximal, B=buccal, L=lingual, Tot=individual mean. Mol=molars, Premol=premolars, Inc=incisors

Häufigkeitsverteilung der Sondierungstiefen>3 mm bei den verschiedenen Untersuchungsintervallen. A=approximal, B=bukkal, L=lingual, Tot=individueller Mittelwert. Mol=Molaren, Premol=Prämolaren, Inc=Schneidezähne

Distribution de fréquence des profondeurs de sondage de plus de 3 mm aux différents examens. Groupes témoins

	Control groups											
	Baseline				3 years				6 years			
	A	B	L	Tot	A	B	L	Tot	A	B	L	Tot
Group I												
Mol	10	0	1.2	5.3	15.9	0	1.8	4.4	23.1	1.2	6.5	13.4
Premol	1.8	0	0	0.9	4.2	0	0	2.1	14.0	0	0	7
Inc	0.6	0	0	0.3	4.5	0	0	2.3	4.1	0	1.1	2.3
Tot	4.1	0	0.3	2.2	8.2	0	0.6	2.9	13.7	0.3	2.5	7.6
Group II												
Mol	24.9	0.6	3.4	13.5	26.9	0.6	8.3	15.7	37.8	2.8	4.0	20.6
Premol	10.2	0	0	5.1	13.1	0.5	2.1	7.2	12.1	1.4	3.8	7.3
Inc	4.6	0	0.4	1.3	12.9	1.3	1.3	7.1	8.9	2.0	1.2	5.2
Tot	13.2	0.2	1.3	6.6	17.6	0.8	3.9	10.0	19.6	2.1	3.0	11.7
Group III												
Mol	35.6	2.1	4.3	19.4	32.9	7.4	9.2	20.6	41	5.6	13.7	25.2
Premol	13.8	0.7	2.6	7.7	13.8	2.9	3.8	8.6	29	3.5	7.8	17.3
Inc	8.3	0	1.7	4.6	15.9	3.8	3.0	9.7	17.9	3.6	7.1	11.6
Tot	19.2	0.9	2.9	10.6	20.9	4.7	5.3	13	29.3	4.2	9.4	18.0

DF surfaces (Table 2), plaque (Fig. 1), gingivitis (Fig. 2), probing depths and loss of periodontal tissue support. In the test as well as in the control groups, the average probing depths and attachment loss figures tended to increase with increasing age. The frequency distribution of "probing depths>3 mm" (Tables 3a,b) was in the youngest age group 3.5% (test), 2.2% (control) and in the middle age group 8.3%, 6.6% and in the oldest age group and 8.4% (test), 10.6% (control). Consistently, deeper pockets were more frequent at approximal than at buccal and lingual tooth surfaces (Tables 3a, b) and more frequent in molars than in premolars and incisors.

At the *Follow-up examinations* 3 and 6 years after the *Baseline examination,* the test group patients had markedly improved their oral hygiene conditions (Fig. 1); in all three age groups the plaque scores had decreased from around 60 to around 15–20%. In the control groups there was no obvious improvement of the oral hygiene standards between the various examinations.

At the *Follow-up examinations* the test group patients had very low gingivitis scores (Fig. 2). In the control groups there was no marked change of the gingivitis scores over the 6 years of trial.

The frequency distribution of "probing depths>3 mm" (Table 3a) decreased in the test groups from an average of 3.5% (group I), 8.3% (group II), 8.4% (group III) to 0.3 and 0.4% (group I), 0.5 and 0.2% (group II) and 0.4 and 0.6% (group III) at the 3- and 6-year *Follow-up examinations.* In all three control

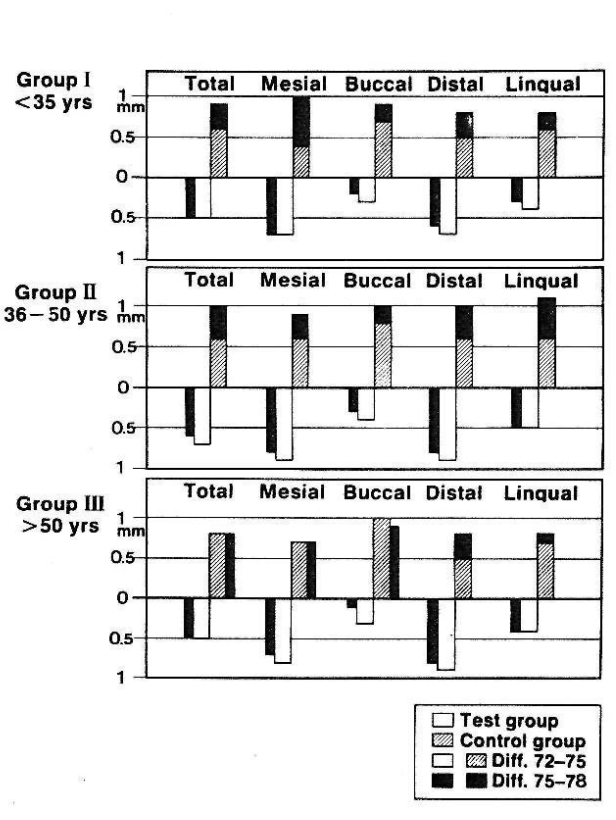

Fig. 3. Histogram describing alterations of pocket (probing) depths between the Baseline and re-examinations in 1975 and 1978. In the test groups a reduction (below the 0-line) of the probing depth occurred, while in the control groups the probing depths increased (above the 0-line).

Das Histogramm beschreibt die Veränderungen der Taschen- (Sondierungs) tiefen zwischen den Ausgangs- und den Wiederholungsuntersuchungen 1975 und 1978. In den Versuchsgruppen kam es zu einer Reduktion (unter der 0-Linie) der Sondierungstiefen, während in den Kontollgruppen sich die Sondierungstiefen erhöhten (über der 0-Linie).

Histogramme représentant les modifications de la profondeur de sondage des culs-de-sac prenant place entre l'Examen Initial et les rappels en 1975 et 1978. Dans les groupes expérimentaux, il se produisait une réduction de la profondeur de sondage (indiquée en dessous de la ligne-0), tandis que dans les groupes témoins, la profondeur de sondage augmentait (au-dessus de la ligne-0).

groups (Table 3b) the frequency distribution of "probing depths>3 mm" increased between the examination intervals. Thus, at the 6-year *Follow-up examination* 7.6% (group I) 11.7% (group II) and 18% (group III) of all units examined in the control patients had "probing depths>3 mm". At the *Follow-up examinations* the percentage of deep pockets in the control patients was larger at approximal than at buccal and lingual surfaces. In addition the presence of deep pockets was more frequent in molars than in premolars and incisors. It is evident from Fig. 3 that the individual mean (total) pocket depths (probing depths) as well as the average depths on mesial, buccal, distal and lingual surfaces were reduced and remained reduced in the test groups but increased in the controls over the 6 years of trial.

Fig. 4 shows the alterations of the attachment levels from 1972 to 1978. In the test groups, there were no significant changes of the attachment levels during the observation period. In all three control groups, however, the clinical attachment level gradually shifted apically.

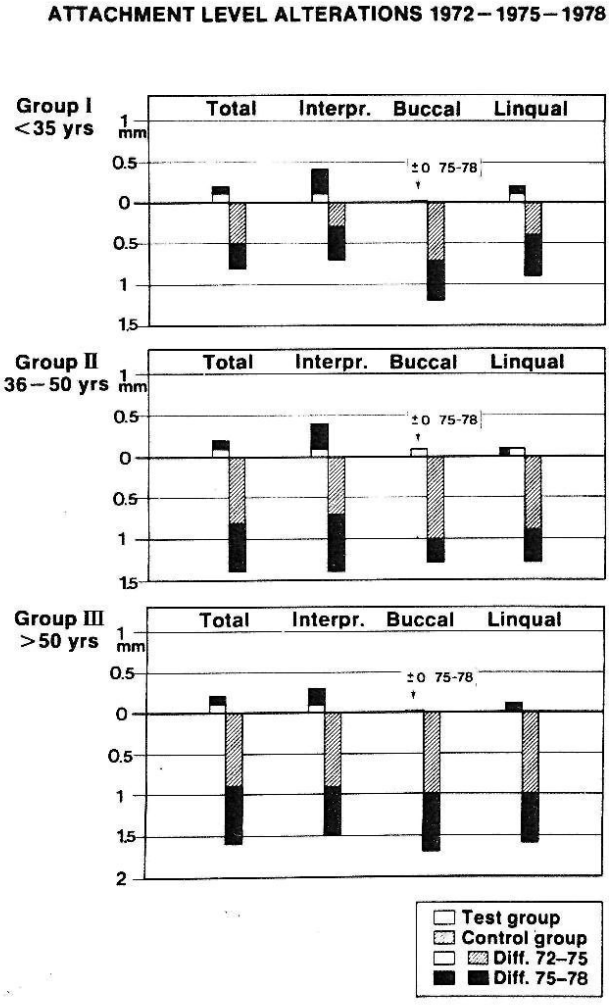

Fig. 4. Histogram illustrating alterations of the clinical attachment levels between the Baseline (1972) and re-examinations (1975, 1978) in the various test and control groups. The attachment level remained unaltered in the test groups but was reduced in all the control groups (below the 0-line). The average attachment loss per year was in control groups I=0.13 mm, II=0.23 mm, III=0.26 mm.

Das Histogramm verdeutlicht die Veränderungen der klinischen Attachmentniveaus zwischen der Ausgangs- (1972) und den Wiederholungsuntersuchungen (1975, 1978) in verschiedenen Versuchs- und Kontrollgruppen. Das Attachmentniveau der Versuchsgruppen verblieb unverändert, reduzierte sich jedoch in den Kontrollgruppen (unter der 0-Linie). Der durchschnittliche Attachmentverlust pro Jahr war in den Kontrollgruppen I=0,13 mm, II= 0,23 mm und III=0,26 mm.

Histogramme illustrant les modifications du niveau clinique de l'attachement se produisant entre l'Examen Initial (1972) et les rappels (1975, 1978) dans les différents groupes expérimentaux et témoins. Le niveau de l'attachement restait inchangé dans les groupes expérimentaux, mais il était réduit dans tous les groupes témoins (au-dessous de la ligne-0). La perte annuelle moyenne de l'attachement était dans les groupes témoins: I=0,13 mm, II=0,23 mm, III=0,26 mm.

The mean number of tooth surfaces that showed signs of primary and recurrent caries is presented in Table 4. Except for a few individuals, the test group patients did not develop caries during the 6 years of trial. In the control groups on the average 7.4 (group I), 5.4 (group II) and 4.2 (group III) new caries lesions developed during the same period. There was a tendency that the patients in the youngest age group developed more new caries lesions than members of the older age groups. This difference was mainly the result of caries development on proximal tooth surfaces. Recurrent caries lesions were found in only a few patients within the test groups. In the control groups the number of recurrent caries lesions, except in group I, tended to be larger than the primary caries lesions. Thus, the average numbers of

Table 4. Mean number of tooth surfaces that showed signs of primary and recurrent caries during the 6 years of trial. P=proximal, BL=buccal+lingual, O=occlusal, Tot=individual mean; DF-s=decayed+filled surfaces. R-s=recurrent caries surfaces

Mittlere Anzahl der Zahnoberflächen, an denen während der 6 Jahre Zeichen primärer und rezidivierender Karies registriert wurden. P=approximal, BL=bukkal+lingual, O=okklusal, Tot=individueller Mittelwert; DF-s=kariierte+mit Füllungen versehene Oberflächen, R-s=rezidivierte kariöse Oberflächen

Nombre moyen de faces dentaires présentant des signes de carie primaire ou de récidive de la carie pendant les 6 années de l'expérience. P=proximales, BL=vestibulaires+linguales, O=occlusales, Tot=moyenne individuelle, DF-s=faces cariées+obturées, R-s=récidive de carie (faces)

	New DF-surfaces (DF-s)				Recurrent caries surfaces (R-s)				Sum: DF-s+R-s			
	P	BL	O	Tot	P	BL	O	Tot	P	BL	O	Tot
Group I						Control						
3 years	2.9	1.6	0.2	4.7	2.2	1.0	1.6	4.8	5.1	2.6	1.8	9.5
3–6 years	1.8	0.8	0.1	2.7	1.9	0.8	0	2.7	3.7	1.6	0.1	5.4
0–6 years	4.7	2.4	0.3	7.4	4.1	1.8	1.6	7.5	8.8	4.2	1.9	14.9
Group II												
3 years	1.7	1.0	0.1	2.8	2.9	1.1	1.5	5.6	4.6	2.1	1.6	8.3
3–6 years	1.1	1.5	0.1	2.6	3.0	1.0	0.1	4.2	4.1	2.5	0.2	6.8
0–6 years	2.8	2.5	0.2	5.4	5.9	2.1	1.6	9.8	8.7	4.6	1.8	15.1
Group III												
3 years	0.6	1.3	0.2	2.1	2.2	1.3	0.8	4.3	2.8	2.6	1.0	6.4
3–6 years	0.8	1.1	0.2	2.1	2.2	1.2	0	3.4	3.0	2.3	0.2	5.5
0–6 years	1.4	2.4	0.4	4.2	4.4	2.5	0.8	7.7	5.8	4.9	1.2	11.9
Group I						Test						
3 years					0.1			0.1	0.2			0.2
3–6 years					0.1			0.1	0.1			0.1
0–6 years					0.2			0.2	0.2			0.2
Group II												
3 years					0.1			0.1	0.1			0.1
3–6 years					0.1			0.1	0.1			0.1
0–6 years					0.2			0.2	0.2			0.2
Group III												
3 years					0.1	0.1		0.2	0.1	0.1		0.2
3–6 years					0.1			0.1	0.1			0.1
0–6 years					0.2	0.1		0.3	0.2	0.1		0.3

recurrent caries lesions in the control groups, calculated from the 6-year *Follow-up examination,* were 7.5 (group I), 9.8 (group II), and 7.7 (group III).

Discussion

The findings reported clearly demonstrate that a preventive program which stimulates individuals to adopt proper oral hygiene habits may prevent the progression of periodontal disease and caries in adults. A discussion of the pertinent literature in this field was presented in a previous publication (Axelsson & Lindhe 1978).

If the results obtained from the test groups are compared with the findings in the controls, it becomes obvious that traditional dental care does not prevent the progression of caries and periodontal disease in an adult population. Such a conclusion corroborates findings reported by Björn (1974) and Söderholm (1979). They monitored the development of caries and periodontal disease in a group of employees of a Swedish shipyard and reported that, despite the individuals regularly received dental treatment of a traditional type, there was over a 9-year period a gradual deterioration of the dentition in this sample. In many respects the findings made in the present test groups are also in agreement with Söderholm (1979). Subsequent to a 9-year follow-up examination of the group of patients earlier referred to, he initiated a longitudinal study to assess the effect on the dental conditions of a treatment program with a preventive emphasis. This program had a design similar to that described by Axelsson & Lindhe (1978), i.e. it included measures such as oral hygiene evaluation and reinstruction, scaling, root planing and polishing, repeated once every 3 months over a 3- to 4-year period. Söderholm (1979) concluded "the dental care program significantly improved the dental health" and "the increased time and effort devoted to preventive care were compensated by a decreased need for restorative treatment."

Acknowledgment

This study was supported by grants from the Swedish Medical Research Council K77-24X-4725.

Zusammenfassung

Der Effekt kontrollierter oraler Hygiene auf das Vorkommen von Karies und parodontalen Krankheiten bei Erwachsenen

Die vorliegende Mitteilung beschreibt das Resultat einer klinischen Versuchsreihe, bei der bei einer Gruppe erwachsener Probanden während einer Langzeitbeobachtungsperiode von über 6 Jahren ein guter oraler Hygienestandard aufrechterhalten wurde. Während der Jahre 1971–72 wurden 375 Probanden für eine Versuchs- und 180 Probanden wurden für eine Kontrollgruppe ausgewählt. Während der Beobachtungsperiode von 6 Jahren fielen 65 Probanden in der Versuchs- und 34 in der Kontrollgruppe aus. Die Probanden wurden in drei Altersgruppen eingeteilt; I<35 Jahre, II 36–50 Jahre, III>50 Jahre. Bei den Teilnehmern der Versuchs- und Kontrollgruppen wurde anfangs eine *Ausgangsuntersuchung* vorgenommen, die die Beurteilung des oralen Hygieneniveaus, der Gingivitis, vorliegender Parodontalkrankheit und Karies beinhaltete. Nach dieser Untersuchung wurden alle kariösen Läsionen behandelt und unzureichende dentale Restaurationen justiert. Jeder Proband wurde weiterhin über Entstehung und Folgen seiner Parodontalkrankheit genau unterrichtet und prophylaktisch behandelt. Die Probanden der Kontrollgruppe nahmen in den folgenden sechs Jahren der Versuchsperiode an keinem weiteren Prophylaxeprogramm teil. Sie wurden jedoch einmal jährlich in die Zahnklinik zu Untersuchung und symptomatischer Zahnbehandlung einbestellt. Die Probanden der Versuchsgruppe wurden alle 2–3 Monate vorbeugend behandelt, was (1) Instruktion und Übung in der Technik oraler Hygiene und (2) sorgfältige prophylaktische Behandlung beinhaltete.

Die Probanden wurden drei und sechs Jahre nach der Ausgangsuntersuchung nachuntersucht. Bei der *Nachuntersuchung* wurden die gleichen Parameter registriert, die anlässlich der *Ausgangsuntersuchung* registriert worden waren. Die Resultate der Langzeitstudie zeigten, dass ein Vorbeugungsprogramm das den Patienten dazu anregt sich an zweckmässige orale Hygienegerwohnheiten zu gewöhnen in der Lage ist, Gingivitis verschwinden zu lassen und das Fortschreiten der Parodontalkrankheit und der Karies zu verhindern. Übliche traditionelle zahnärztliche Betreuung konnte die Weiterentwicklung der Karies- und Parodontalkrankheit beim Erwachsenen nicht verhindern.

Résumé

Effets sur la carie et sur les parodontopathies de soins d'hygiène bucco-dentaire dirigés chez des adultes. Résultats au bout de 6 années

Le présent compte-rendu décrit les résultats d'un essai clinique au cours duquel un groupe d'adultes a été maintenu à un niveau d'hygiène bucco-dentaire adéquat pendant une période de 6 ans. En 1971–72, 375 sujets ont été enrôlés dans un groupe expérimental et 180 dans un groupe témoin. Pendant les 6 années de l'essai, le groupe expérimental a subi une perte de 65 personnes et le groupe témoin une perte de 34 personnes. Les patients étaient répartis en trois groupes d'âges: I<36 ans, II 36–50 ans, III>50 ans. Les membres du groupe expérimental et ceux du groupe témoin ont d'abord subi un *Examen Initial* comprenant l'enregistrement de l'hygiène bucco-dentaire, des gingivites, des parodontopathies et des caries. Après cet examen, toutes les caries ont été traitées et les obturations défectueuses ont été rectifiées. Chacun des patients a reçu des informations détaillées sur son cas et un nettoyage dentaire. Les patients du groupe témoin n'ont pris part à aucun programme complémentaire de santé dentaire pendant les 6 années suivantes. Ils ont cependant été convoqués une fois par an dans un service public de soins dentaires où ils ont été examinés et ont reçu un traitement dentaire symptomatique. Les participants du groupe expérimental, d'autre part, ont reçu un traitement préventif, répété tous les 2–3 mois et comprenant (1) instruction et entraînement aux techniques de l'hygiène bucco-dentaire et (2) un nettoyage dentaire minitieux.

Les patients ont été réexaminés 3 ans et 6 ans après l'examen initial. A l'*Examen de Rappel*, les paramètres étudiés à l'*Examen Initial* ont de nouveau été enregistrés. Les résultats obtenus ont mis en évidence le fait qu'un programme préventif encourageant les sujets à adopter des habitudes adéquates en matière d'hygiène bucco-dentaire peut faire disparaître les gingivites et prévenir la progression des parodontopathies et des caries. Les soins dentaires traditionnels, par contre, ne prévenaient ni les progrès de la carie ni ceux des parodontites chez l'adulte.

References

Axelsson, P. (1978) The effect of plaque control procedures on gingivitis, periodontitis and dental caries. Department of Periodontology, Thesis. University of Gothenberg, Sweden.

Axelsson, P. & Lindhe, J. (1978) Effect of controlled oral hygiene procedures on caries and periodontal disease in adults. *Journal of Clinical Periodontology* **5**, 133–151.

Björn, A-L. (1974) Dental health in relation to age and dental care. *Odontologisk Revy* **25**, Suppl. 29.

Knowles, J. W., Burgett, F. G., Nissle, R. R., Schick, R. A. Morrison, E. C. & Ramfjord, S. P. (1979) Results of periodontal treatment related to pocket depth and attachment level. Eight years. *Journal of Periodontology* **50**, 225–233.

Koch, G. (1967) Effect of sodium fluoride in dentifrice and mouthwash on incidence of dental caries in schoolchildren. *Odontologisk Revy* **18**, Suppl. 12.

Lindhe, J. & Nyman, S. (1975) The effect of plaque control and surgical pocket elimination on the establishment and maintenance of periodontal health. A longitudinal study of periodontal therapy in cases of advanced disease. *Journal of Clinical Periodontology* **2**, 67–79.

Lövdal, A., Arno, A., Schei, O. & Waerhaug, J. (1961) Combined effect of subgingival scaling and controlled oral hygiene on the incidence of gingivitis. *Acta Odontologica Scandinavica* **19**, 537–555.

Ramfjord, S. P., Knowles, J. W., Nissle, R. R., Schick, R. A. & Burgett F. G. (1973) Longitudinal study of periodontal therapy. *Journal of Periodontology* **44**, 66–77.

Söderholm, G. (1979) Effect of a dental care program on dental health conditions. A study of employees of a Swedish shipyard. Department of Periodontology, Faculty of Odontology, University of Lund, Malmö, Sweden.

Address:
Jan Lindhe
Department of Periodontology
School of Dentistry
Box 77030
S-400 33 Göteborg, Sweden

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.