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Ich bedanke mich bei den unten aufgeführten Kolleginnen und Kollegen für ihre wertvolle Mitarbeit, die sie in den vergangenen zwei Jahren geleistet haben.

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Erosive tooth wear and wedge-shaped defects in 1996 and 2006: cross-sectional surveys of Swiss army recruits

KEYWORDS
Dental erosion, erosive tooth wear, non-carious cervical lesions, NCCL, wedge-shaped defect

SUMMARY
The purpose of this study was to determine the prevalence and possible etiological factors of erosive tooth wear and wedge-shaped defects in Swiss Army recruits and compare the findings with those of an analogous study conducted in 1996. In 2006, 621 recruits between 18 and 25 years of age (1996: 417 recruits; ages 19 to 25) were examined for erosive tooth wear and wedge-shaped defects. Additional data was acquired using a questionnaire about personal details, education, dentition's subjective condition, oral hygiene, eating and drinking habits, medications used, and general medical problems. In 2006, 60.1% of those examined exhibited occlusal erosive tooth wear not involving the dentin (1996: 82.0%) and 23.0% involving the dentin (1996: 30.7%). Vestibular erosive tooth wear without dentin involvement was seen in 7.7% in 2006 vs. 14.4% in 1996. Vestibular erosive tooth wear with dentin involvement was rare in both years (0.5%). Oral erosive tooth wear lacking exposed dentin was also rare in those years, although more teeth were affected in 2006 (2.1%) than in 1996 (0.7%). The examinations in 2006 found one or more initial wedge-shaped lesions in 8.5% of the recruits, while 20.4% of the study participants exhibited such in 1996. In 1996, 53% consumed acidic foods and beverages more than 5 times/day; in 2006, 83.9% did so. In neither study did multivariate regression analyses show any significant correlations between occurrence and location of erosive tooth wear and wedge-shaped defects and various other parameters, e.g., eating and hygiene habits, or dentin hypersensitivity.
Despite a significant increase in consumption of acidic products between 1996 and 2006, the latter study found both fewer erosive tooth wear and fewer wedge-shaped defects (i.e., fewer non-carious lesions.)

Introduction

In recent years, the occurrence and severity of erosive tooth wear seems to have increased. Numerous studies have provided evidence of this trend (Jaeggi & Lussi 2014). However, it is difficult to compare epidemiological studies, because the populations examined and methods used often differ greatly. Various authors have shown that the prevalence of erosive tooth wear has especially increased among younger populations. With increasing age of these population groups, progression of these defects must be expected unless adequate prophylactic measures are implemented.

The main cause of erosive tooth wear is exposure to exogenous and/or endogenous acids. Additional factors are involved which can favor or inhibit erosive processes. On the whole, the genesis of erosive tooth wear is multifactorial.

For instance, regular consumption of alcopops and sport/soft/energy drinks is widespread in the younger population. Between 1977 and 2001, soft drink consumption in the USA

increased in all age groups by 138% (Nielsen & Popkin 2004). A comparison among Norwegian (army) recruits showed an increase in soft drink or juice consumption between 1990 and 1999. In contrast, fruit consumption decreased (Myklebust et al. 2003).

Endogenous causes of erosive tooth wear are eating disorders (anorexia/bulimia nervosa) and GERD (gastroesophageal reflux disease). Among young women, the prevalence of anorexia nervosa was 0.3% and bulimia nervosa 1.0%, tendency rising. The ratio of affected women to men is over 10:1 (Hoek & van Hoeken 2003). However, particularly GERD seems to be an increasing problem. According to one study, the prevalence of GERD increased four- to sevenfold from 1970 to 1995 (El-Serag & Sonnenberg 1998). In Switzerland, the prevalence of GERD is estimated to be 17.6% of the population, and corresponds to the figures of other industrialized nations (Schwenkglenks et al. 2004).

The prevalence of wedge-shaped defects in adults in the Canton of Zürich was investigated. More than half of the 40- to 59-year-olds exhibited wedge-shaped defects (Menghini et al. 2002). In 60.8% of the 26- to 30-year-olds and 78.8% of the 46- to 50-year olds, Lussi et al. (1993) found at least one tooth with a wedge-shaped defect. In 19.1% of the younger and 47.2% of the older age group, deep wedge-shaped defects were observed.

The changes in behavior described above suggest that an increase in erosive tooth wear should be expected. Because studies in Switzerland pertaining to this are lacking, the purpose of the present study was to examine the prevalence of erosive tooth wear and wedge-shaped defects in Swiss Army recruits in 2006 and compare the results with an analogous work from 1996 (Jaeggi et al. 1999). Additionally, information on the general medical status, education, oral hygiene habits, knowledge about erosive tooth wear, and consumption of potentially erosive foods and beverages was collected using a questionnaire, in order to elucidate the influence of possible etiological factors.

Materials and Methods

In 2006, the oral health of 621 Swiss Army recruits born between 1981 and 1988 (18- to 25-year-olds) was surveyed. As demonstrated by previous studies, the participating recruits were representative of the average young male population of Switzerland (Joss et al. 1992, Röthlisberger et al. 2007). Prior to the clinical exam, the recruits independently filled out the 70-item questionnaire. This was to provide data on education, general medical problems such as reflux, medication, subjective condition of dentition, oral hygiene habits, awareness of the erosion problem, and behavior regarding consumption of potentially erosive beverages (including alcohol) and foodstuffs. The subsequent clinical exam of erosive tooth wear was performed analogously to recruit examinations from 1996. Erosive tooth wear on vestibular, occlusal, and oral tooth surfaces was recorded, as were wedge-shaped defects on vestibular tooth surfaces (excluding 3rd molars) (Lussi et al. 1991, Jaeggi et al. 1999).

Erosive tooth wear and wedge-shaped defects were recorded by two examiners (A and B). They were ignorant of the results of the questionnaire filled out by the recruits. Prior to the study, these two dentists were calibrated by two experienced colleagues (AL, MS), who also supervised them during the exams. These same researchers had carried out the calibration in the 1996 study (Jaeggi et al. 1999). The intra-examiner agreement was tested with double exams (dentist A: 37 recruits; dentist B: 36). The inter-examiner agreement was determined by having both dentists clinically examine the same 40 recruits.

In both surveys (1996 and 2006), the erosion index according to Lussi et al. (1991) was used:

Vestibular

Score 0 No erosion. Surface with a smooth, silky-glazed appearance, absence of developmental ridges possible.
Score 1 Loss of surface enamel. Intact enamel found cervical to the lesion. Concavity in enamel, the width of which clearly exceeded its depth, thus distinguishing it from toothbrush abrasion. Undulating borders of the lesions are possible. Dentin is *not* involved.
Score 2 Involvement of dentin on *less* than *one-half* of the tooth surface.
Score 3 Involvement of dentin on *more* than *one-half* of the tooth surface.

Occlusal and oral

Score 0 No erosion. Surface with a smooth, silky-glazed appearance, absence of developmental ridges possible.
Score 1 Slight erosion, rounded cusps, edges of restorations higher than the level of the adjacent tooth surface, grooves on occlusal aspects, loss of surface enamel. Dentin is *not* involved.
Score 2 Severe erosion, more pronounced signs than in Score 1. Dentin *is* involved.

Wedge-shaped defects

Score 0 No wedge-shaped defect.
Score 1 Wedge-shaped defect less than 1 mm deep (measured from the original curvature): weak abrasion.
Score 2 Wedge-shaped defect deeper than 1 mm (measured from the original curvature): severe abrasion.

Statistical analysis

The data were analyzed with descriptive and multivariate methods. The occurrence of erosive tooth wear and wedge-shaped defects was analyzed using general linear regression analysis (General Linear Models; SAS® PROC GLM) in order to find correlations between these data and the answers given on the questionnaire. The influencing variables were: consumption of erosion-promoting drinks and foodstuffs, medications, oral hygiene and relevant signs and symptoms of disease. The variable "nutrition" was used both as a single variable and included in "acid load" in the models. According to the value range, a distinction was made between discrete variables, which were additively included in the regression model (decision and selection questions), and metric variables, which were multiplicatively included (how often do you brush?, how great is the acid load?, etc.). Evaluation was performed separately for the vestibular, occlusal, and oral surfaces, and additionally for the totaled erosive tooth wear. The dependent variables were the average per mouth, the maximum value, and the sum of all sites.

The results of the questionnaire and the clinical exams from 1996 and 2006 were compared using the chi-square and Fisher's Exact test (SAS 9.2., SAS Institute Inc., Cary, NC, USA). The inter- and intra-examiner agreement was calculated taking the probability of random agreement (kappa value) into consideration. The level of significance was set at $p=0.05$.

Results

The average age of the recruits was 20.3 years in both studies. In 2006, a total of 51,180 (1996: 34,146) tooth surfaces in 621 recruits (1996: 417) were examined for erosive tooth wear and 17,095 (1996: 11,393) tooth surfaces for wedge-shaped defects.

Table I shows the kappa values (κ) of the examiners for recording erosion indices and wedge-shaped defects, dependent of tooth surfaces examined. Intra-examiner agreement in both studies was between κ=0.83 and κ=1.00. Inter-examiner agreement was between κ=0.66 and κ=1.00.

Erosive tooth wear

The number and percentages of examined recruits who exhibited one or more teeth with erosive tooth wear of a certain score are shown in Table II. Erosive tooth wear was found most commonly on occlusal surfaces in both years. In 2006, 60.1% (1996: 82.0%) showed at least one score-1 erosion occlusally and 23.0% (1996: 30.7%) exhibited at least one score-2 erosion. In 7.7% (1996: 14.4%) of the recruits, at least one vestibular score-1 erosion was found, and in 0.5% (1996: 0.5%) at least one score 2. The percentage of recruits with at least one affected tooth dropped during the 10-year period by 21.9% and 7.7% for occlusal score-1 and score-2 erosive tooth wear, respectively. In terms of occlusal erosive tooth wear, the decrease in number of affected recruits from 1996 to 2006 was significant (p=0.003). Compared to 2006, almost twice as many recruits (%) in 1996 had at least one score-1 erosion. In 2006 and 1996, score-2 erosive tooth wear was found in the same percentage of recruits. Score-3 erosive tooth wear was not found in either year. Overall, a significant reduction in vestibular erosive tooth wear was observed between 1996 and 2006 (p=0.009). Oral erosive tooth wear increased slightly, by 1.4% for score 1 and 0.2% for score 2.

Table III shows the mean number of affected teeth per recruit that exhibited erosive tooth wear of a certain score. With the exception of score-2 oral erosive tooth wear, fewer affected tooth surfaces were found in 2006 than in 1996. Only the decrease in occlusal score-1 erosive tooth wear was statistically significant (p<0.001).

Tab. I Intra- and inter-examiner agreement of examiner A and B for recording erosion indices and wedge-shaped defects in 1996 and 2006, dependent of the tooth surfaces examined (κ = kappa value; n = number of recruits examined twice).

	κ A		κ B		κ A–B	
	1996 n=12	2006 n=37	1996 n=9	2006 n=36	1996 n=7	2006 n=40
Vestibular erosive tooth wear	1.00	0.93	0.86	0.92	1.00	0.87
Occlusal erosive tooth wear	0.92	0.83	0.83	0.91	0.66	0.72
Oral erosive tooth wear	1.00	1.00	1.00	1.00	1.00	0.95
Wedge-shaped defects	1.00	0.93	1.00	0.99	1.00	0.98

Tab. II Recruits with at least one score-1 or score-2 erosion in 1996 and 2006 (n.s. = non-significant differences, no score-3 erosive tooth wear).

		Score 1		Score 2		p
		1996	2006	1996	2006	
Vestibular erosive tooth wear	Number of recruits	60	48	2	3	<0.01
	%	14.4	7.7	0.5	0.5	
Occlusal erosive tooth wear	Number of recruits	342	373	128	143	<0.01
	%	82.0	60.1	30.7	23.0	
Oral erosive tooth wear	Number of recruits	3	13	0	1	n.s.
	%	0.7	2.1	0.0	0.2	

Tab. III Mean number of affected teeth per recruit that exhibited erosive tooth wear of a certain score in 1996 and 2006 (no score-3 erosive tooth wear).

		Score 1		Score 2	
		1996	2006	1996	2006
Vestibular erosive tooth wear	Number of teeth per recruit	3.07	2.75	1.5	1.33
Occlusal erosive tooth wear	Number of teeth per recruit	3.75	2.59	2.09	2.08
Oral erosive tooth wear	Number of teeth per recruit	5.67	5.15	0	8

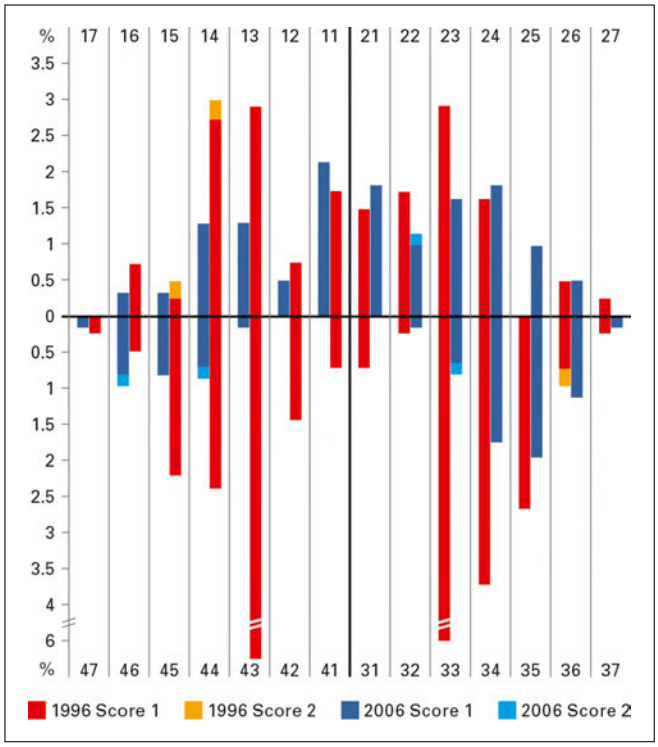

Fig. 1 Percent distribution of vestibular score-1 and score-2 erosive tooth wear.

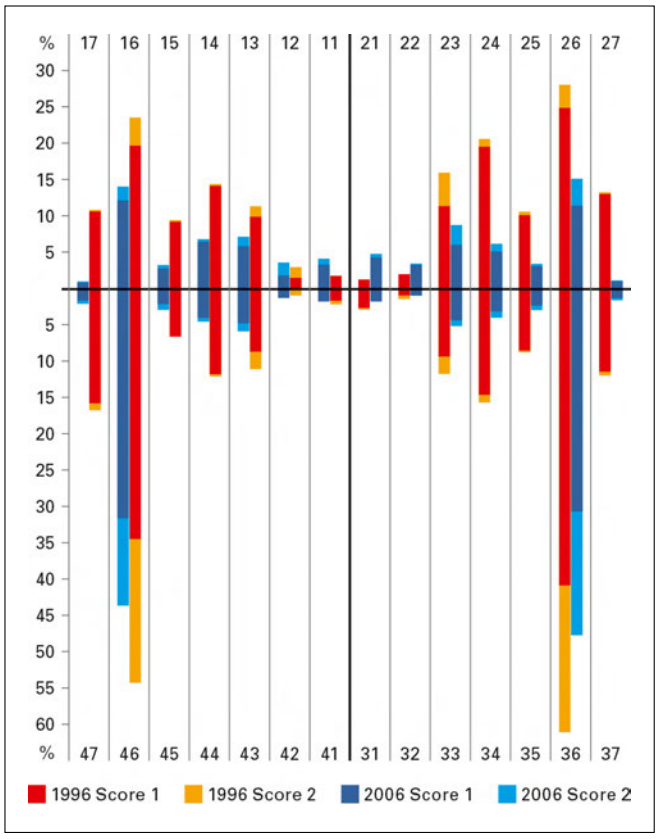

Fig. 2 Percent distribution of occlusal score-1 and score-2 erosive tooth wear.

Figures 1 to 3 depict the distributions in percent of vestibular, occlusal and oral erosive tooth wear for the individual teeth. In 2006, vestibular erosive tooth wear was chiefly found on maxillary and mandibular premolars, maxillary incisors and canines,

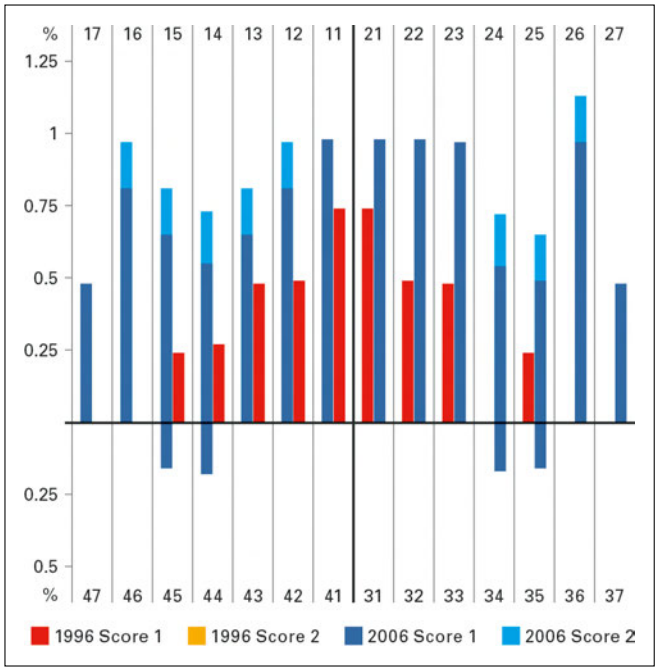

Fig. 3 Percent distribution of oral score-1 and score-2 erosive tooth wear.

and on mandibular first molars. In 1996, the vestibular surfaces of mandibular canines were most frequently affected, followed by first premolars, maxillary canines, and maxillary incisors. In both years, the first molars most frequently exhibited score-1 and -2 erosive tooth wear occlusally, followed by the first premolars and canines. The mandibular first molars were more frequently affected than their maxillary counterparts. The second molars were more seldomly affected in 2006 than in 1996. In 2006, oral erosive tooth wear was almost exclusively found in the maxilla, and in 1996 entirely so. In both years, chiefly incisors and canines were affected.

Wedge-shaped defects

In 2006, at least one score-1 wedge-shaped defect was found in 53 recruits (8.5%), but in 1996, 85 recruits (20.4%) exhibited at least one such defect. The drop in prevalence of wedge-shaped defects from 1996 to 2006 was significant ($p<0.001$). An average of 2.06 teeth per recruit in 2006 and 2.65 teeth per recruit in 1996 were affected ($p>0.05$) (Tab. IV).

Figure 4 depicts the percent distribution of wedge-shaped defects. In both 2006 and 1996, wedge-shaped defects in the maxilla were most often observed on first premolars and first molars, and in the mandible on first premolars.

Nutrition and oral hygiene

Figure 5 illustrates the total exogenous acid intake (acidic beverages and foodstuffs) in 1996 and 2006. In 1996, 53.2% of the recruits reported over 5 acid intakes daily, and in 2006, 83.9% did so. The increase in consumption of acidic foods and beverages in 2006 vs 1996 was significant ($p<0.001$).

The effect of endogenous acids was found in only a few recruits: 4.5% in 2006 (1996: 8.7%) reported suffering from gastroesophageal refluxing, which occurred once or twice a week in 3.0% of recruits (1996: 5.1%). This difference between 2006 and 1996 was not significant ($p>0.05$). Regular vomiting was only reported by 1.6% and 1.7% in 2006 and 1996, respectively ($p>0.05$). Multiple weekly or even daily vomiting, which could

Tab. IV Recruits with one or more teeth exhibiting wedge-shaped defects on vestibular surfaces in 1996 and 2006 (n.s. = non-significant differences).

	Score 1		Score 2		p
	1996	2006	1996	2006	
Number of recruits	85	53	1	0	<0.001
%	20.4	8.5	0.2	0.0	
Number of teeth per recruit	2.65	2.06	1	0	n.s.

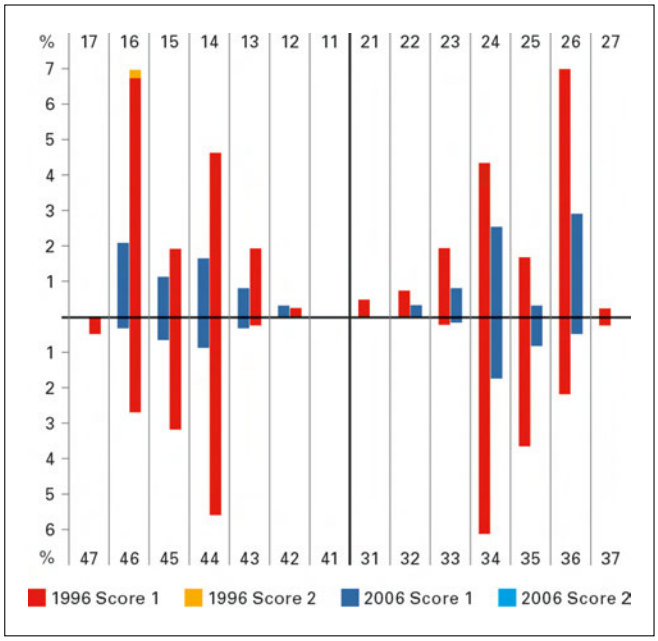

Fig. 4 Percent distribution of score-1 and -2 wedge-shaped defects.

indicate an eating disorder, was reported by only one recruit in 1996.

The evaluation of oral hygiene habits showed that in 2006, 92.5% of the recruits brushed their teeth 2-3 times a day vs 85.9% who did so in 1996. In both years, most brushed twice a day, but the proportion who did so in 2006 was higher (65.8%) than in 1996 (53.2%). In 2006, fewer recruits indicated brushing once (7.5%) or 3 times (26.7%) per day than in 1996 (14.2% and 32.6%, resp.). Overall, recruits brushed significantly more often in 2006 than in 1996 ($p<0.001$).

In terms of brushing techniques, in both years the circular method (2006: 35.6%, 1996: 41.4%) and various motions (2006: 45.4%, 1996: 41.1%) dominated. Only a few reported brushing horizontally (2006: 7.5%, 1996: 7.9%) and vertically (2006: 11.2%, 1996: 9.6%). These differences were not significant. The majority (2006: 72.1%, 1996: 61.7%) brushed with medium-hard bristles. The majority of recruits brushed within 6 to 30 minutes after eating (1996: 62%, 2006: 63.4%), but compared with 1996, a larger proportion in the second examination (1996: 8.8%, 2006: 16.1%) waited 31 to 60 minutes after eating to brush their teeth. This increase was commensurate with the decrease of recruits who brushed immediately – i.e., 5 minutes – after eating (1996: 16.8%, 2006: 7.5%). These changes were significant ($p<0.001$).

On the whole, 12.1% of recruits in 2006 reported suffering from hypersensitive tooth cervices, for instance, during brushing or drinking cold beverages, but significantly more (19.2%) did so in 1996 ($p=0.002$). General diseases, salivary glandular disorders, consumption of sedatives and soporifics as well as other medications were reported by only a few recruits in both years.

The multivariate regression analysis showed no significant correlations between the occurrence and location of erosive tooth wear and wedge-shaped defects and the following questionnaire parameters: eating and oral hygiene habits, dentin

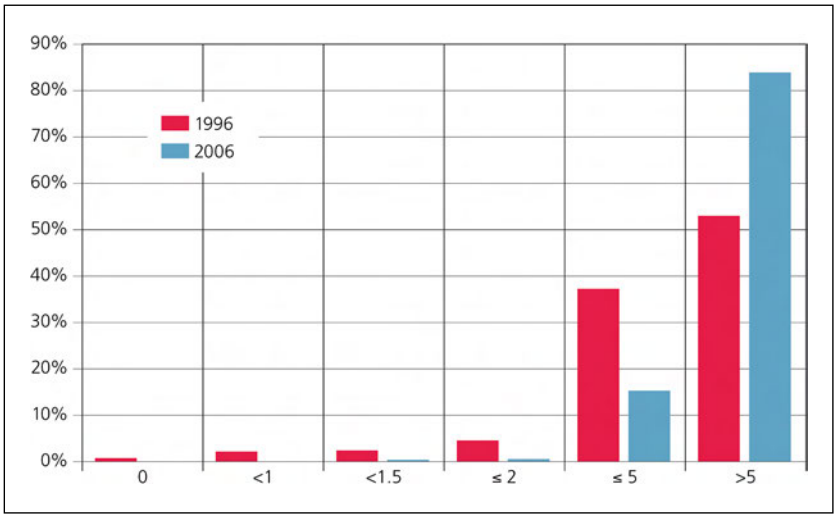

Fig. 5 Percent distribution of recruits with 0 to >5 acidic intakes (beverages and foodstuffs) per day in 1996 (red columns) and 2006 (blue columns).

hypersensitivity, gastroesophageal refluxing, vomiting, diseases, and consumption of medications.

Discussion

Studies on the prevalence of erosive tooth wear are difficult to compare due to the inhomogeneity of the examined groups in terms of age, sex, number of subjects, place of examination, and patients' socioeconomic status, as well as discrepant examination standards such as examiner calibration, number and selection of examined teeth, and use of various indices. Cross-sectional studies with the same methodologies as in the present study are lacking.

Due to military reforms, the army has changed since 1996. The number of conscripts was reduced by half, and the percentage of potential enlistees unfit for military service increased conspicuously from 20% (1996) to 35% (2006) (Bericht des Bundesrates 2007). The results of the questionnaire, however, showed that recruits in both 1996 and 2006 came from all social strata and regions of Switzerland, thus representing the demographic status of a young, male population, which had completed compulsory schooling (Röthlisberger et al. 2007). Hence, the groups examined in both years were comparable.

Further contributing to the comparability of the studies was the fact that the examiners in 2006 were calibrated by the same instructors as in 1996. The calculated kappa values demonstrated very good agreement.

Erosive tooth wear was usually found in a typical location. They were often located on occlusal surfaces; the first mandibular molars were predominantly affected, followed by the vestibular surfaces of the maxillary anterior teeth. Oral erosions were least often found, which agrees with an earlier study in Switzerland (Lussi et al. 1991). Because the population group examined was young, the recruits' teeth had not yet been exposed to many years of acid attacks; oral hygiene, eating and drinking habits as well as other influences might not have had enough time to cause perceptible damage. It is therefore not surprising that most recruits had no or only score-1 erosions. The number of teeth with conspicuous erosions (score 2) hardly changed (Tab. III), but significant fewer recruits were involved in 2006 compared to 1996 (Tab. II). This could be due to an increased awareness of the problematic of erosive tooth wear and/or due to improved prophylactic measures.

On the whole, consumption of erosive foods and drinks increased markedly during this 10-year period. In a 6-year longitudinal study, Lussi & Schaffner (2000) found that ≥4 acid intakes per day were correlated with the genesis and progression of erosive tooth wear, when other factors were also present. English researchers found similar results in children (O'Sullivan & Curzon 2000). In that study, besides the number of acid intakes, the mode in which a beverage was consumed was identified as an additional risk factor. Well over 80% of the recruits in 2006 exceeded the critical value of >4 acid intakes per day (Fig. 5), which was at least 30% more than in 1996. This increase should have led to an increase in erosive tooth wear. Thus, other factors must be responsible for the decrease in erosive tooth wear from 1996 to 2006. However, the mode in which beverages are consumed may have changed. Another possible reason could be dentists' and patients' increased awareness of erosive tooth wear. Today, erosive lesions are possibly recognized earlier and restored with composites. Restored erosive tooth wear was not recorded in this study, which would lead to a lower documented prevalence. This imprecision is compensated by the low DMFT and its reduction between 1996 and 2006. During this period, the mean FT component (filled teeth) decreased from 3.68 to 2.36 (Menghini et al. 2010).

Signs of endogenous acid influences were found in only very few recruits in both years. In a study of patients with GERD (Portale et al. 2007), only 6% of the reflux episodes were accompanied by subjectively perceptible symptoms. Reflux symptoms are thus a poor indicator of the occurrence of GERD. Eating disorders such as anorexia and bulimia nervosa were rare in men (Hoek & van Hoeken 2003).

Although the increase of acid consumption corresponded to the trend and results of other studies (Myklebust et al. 2003, Nielsen & Popkin 2004), erosive tooth wear unexpectedly showed a statistically significant decrease between 1996 and 2006. Simultaneously, hypersensitivities also decreased significantly. The latter are often associated with erosive tooth wear and wedge-shaped defects (Lussi et al. 1993, Addy 2005, West et al. 2013).

The genesis of erosive tooth wear is multifactorial. To elucidate the cause of erosive tooth wear, thorough, meticulous examination is necessary, including a nutritional anamnesis, saliva tests, oral hygiene behavior, reflux diagnostics (gastric endoscopy, pH measurement), and psychological assessment. A personal consultation is a component of such diagnostics and can provide important insights.

The questionnaire alone could not cover all risk factors. For instance, when and how a particular acidic substance was consumed was not recorded. For beverages, although the number of intakes was documented, no information was obtained on intervals between intakes, occasion of intakes (between meals or at meals) or mode of intake (sipping or all at once). Information on salivary flow rate and buffering capacity was also lacking. Another point must also be considered when interpreting the questionnaire results: the erosion findings result from influences of pre-military, civilian life. The new environment and daily routine, as well as the very different social surroundings of military training, may have influenced various habits and thus affected answers about food and beverage consumption or oral hygiene behavior.

The adaptation of behaviors and nutritional and oral hygiene habits presumes certain knowledge of the problems and causal relationships. In 2006 vs 1996, only a slightly, non-significantly higher percentage of recruits (5% more) were familiar with the term and concept of "erosion". With the present questionnaire, it was not possible to determine whether the respondents had actually comprehended the problem's causal context or become sensitized to the topic. Prophylactic measures and behavioral adjustment are possible even without exactly understanding the concept.

In recent years, interest in erosive tooth wear has increased among the media and dental professionals. It is often recommended not to brush immediately after consuming acidic foods or beverages, but instead to wait. The evaluation of oral hygiene habits showed that significantly fewer recruits in 2006 brushed their teeth immediately after a meal, and a larger percentage waited 31–60 minutes to do so. However, a recent study (Bartlett et al. 2013) of more than 3,000 Europeans clearly demonstrated that waiting after breakfast before brushing did not lead to fewer erosive tooth wear. This was confirmed in a study on hypersensitive teeth, in which – as is known – dentin is exposed (West et al. 2013). If effective remineralization takes place via saliva, delayed toothbrushing

should allow the dentin tubuli to close, thus exerting a protective effect. Nevertheless, delayed brushing did not lead to fewer hypersensitive teeth in this study either.

Multiple linear regression analysis (SAS Proc GLM) demonstrated no significant correlation between the distribution and location of erosive tooth wear and wedge-shaped defects and various influences such as nutrition, oral hygiene, frequent vomiting, gastroesophageal reflux, and medication consumption. The recruit population must be considered as a highly homogeneous population group. This homogeneous group showed findings with low variability, which could explain why no significant influencing factors were found.

Finally, it is noted that erosive tooth wear and wedge-shaped defects can already occur during adolescence. Bearing the lifespan of teeth in mind, today's lifestyle and nutrition with increased consumption of erosive foods and beverages as well as more frequent, often stress-related gastroesophageal reflux promotes the genesis of higher-score erosive tooth wear. Despite its continued decline (Menghini et al. 2010), caries occurs much more frequently than erosive tooth wear. As a general prophylactic measure, one should thus still brush immediately after eating and drinking. In risk patients, a professional should provide instruction in individually tailored prophylaxis.

It is important to limit erosive foodstuffs and drinks to main meals in order to avoid a constant, high level of acidity. Drinking through a straw and rapid consumption of the erosive beverage or foodstuff reduces the duration of contact of acid with tooth surfaces. Employing a proper toothbrushing technique without horizontal motions and using non-abrasive toothpastes containing Sn (tin) and fluoride as well as a soft-bristled toothbrush additionally lowers the risk of erosive (and abrasive) loss of dental hard substance.

Instructing and informing patients, referrals to a gastroenterologist (given suspected reflux), psychologist or psychiatrist (given anorexia/bulimia nervosa), nutritional counseling, hygiene instruction, and the use of erosion-inhibiting substances are all measures which can reduce the risk of the genesis and progression of erosive tooth wear.

In summary, a significant decrease in the prevalence of vestibular and occlusal erosive tooth wear was found between 1996 and 2006. The prevalence of wedge-shaped defects and hypersensitive tooth cervices showed a similar development. This overall improved situation regarding non-carious dental hard-tissue defects was accompanied by a simultaneous, significant increase in acid attacks through food and beverages. The present study does not provide an explanation for this surprising development.

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Résumé

Le but de cette étude était de déterminer la prévalence et les possibles facteurs étiologiques intervenants dans l'érosion dentaire et défauts dentaires en forme de cale sur des recrues de l'armée suisse, et de comparer les résultats avec ceux d'une étude similaire conduite en 1996. En 2006, 621 recrues entre 18 et 25 ans (1996: 417 recrues; 19–25 ans) ont été examinés pour érosions et défauts dentaires en forme de cale. De plus, un questionnaire a recueilli des données sur la personne, son éducation, l'état subjectif de la dentition, de l'hygiène buccale, des habitudes alimentaires, de consommation de boissons, prise de médicaments et problèmes de santé générale. En 2006, 60,1% des personnes examinées ont montré des érosions occlusales sans exposition dentinaire (1996: 82%) et 23% incluant la dentine (1996: 30,7%). Des érosions vestibulaires sans exposition de dentine représentaient 7,7% en 2006 contre 14,4% en 1996. Des érosions vestibulaires incluant la dentine étaient rares (0,5%) dans les deux études. Les érosions orales sans exposition dentinaire étaient rares dans les deux études bien que plus de dents étaient concernées (2,1%) en 2006 qu'en 1996 (0,7%). Les examens cliniques de 2006 ont montré des lésions en forme de cale dans 8,5% tandis que dix ans auparavant ce chiffre était de 20,4%. En 1996, 53% des recrues consommaient plus de cinq fois par jour des boissons et aliments acides, tandis qu'en 2006 ils étaient 83,9%. Dans les deux études, l'analyse statistique de régression à multivariantes n'a pas montré de relation entre l'apparition et la localisation des érosions et défauts en forme de cale ainsi que des paramètres tels que l'alimentation, les habitudes d'hygiène ou sensibilités de collets. Malgré une consommation accrue d'acides de 1996 à 2006, moins d'érosions et défauts en forme de cale ont été constatés.

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