

A9-EVALUATION OF DIFFERENT SOURCES OF FLUORIDE INTAKE FOR 2-3-YEAR-OLD CHILDREN RESIDENTS IN A FLUORIDATED COMMUNITY

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Objectives: In the present study the fluoride intake from diet and dentifrice were estimated. However, 3 constituents of the diet were evaluated separately: solids; water and milk; other beverages. **Methods:** Thirty-three 2-3-year-old children participated in the study. The duplicate plate method was used for diet collection in two seasons (winter and summer) and in 2 separate days over a 1-week period (one during the week and another during one day on the following weekend). Fluoride intake from dentifrice was estimated in 2 following days. Fluoride analysis in diet and dentifrice were analyzed with the ion-specific electrode (Orion 9409) after HMDS-facilitated diffusion. Data were analyzed by ANOVA, Tukey test and Student's t test. **Results:** Mean (\pm SD) fluoride intake from diet and dentifrice was 0.025 ± 0.013 and 0.106 ± 0.085 mg/Kg body weight/day, respectively, totalizing 0.130 mg / Kg body weight/day. Among the constituents of the diet, water and milk had a significantly higher contribution to the fluoride intake (0.184 ± 0.108 mg/day, $p < 0.0001$), when compared to solids (0.072 ± 0.045 mg/day) and other beverages (0.066 ± 0.043 mg/day). **Conclusion:** The daily dose of fluoride ingested by the children represents a risk for the development of dental fluorosis. In addition, the dentifrice alone is responsible for 80% of the daily fluoride intake, while among the constituents of the diet, water and milk are the most important contributors.

A10-DIFFERENTIAL DIAGNOSIS BETWEEN SEVERE FLUOROSIS AND ENAMELOGENESIS IMPERFECTA

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Objective: To show differential characteristics between severe fluorosis and some developmental anomalies, which can show some common characteristics resulting in misleading diagnosis. **Methods:** Three children born in an area of extremely high levels of natural fluoridated water with suspected severe fluorosis were referred to our dental clinic for confirmatory diagnosis. Detailed anamnesis, radiographic and clinical examinations were performed. **Results:** Although at first glance clinical characteristics could suggest severe fluorosis, the differential diagnosis was performed through detailed clinical observation, which revealed lack of symmetry of fluorosis lesions characteristics. Moreover, medical history revealed that children were exposed to severe infections during formation of those teeth with supposed fluoride lesions. Thus

suggesting amelogenesis imperfecta. **Conclusion:** This case series pointed out the importance of detailed clinical examination and medical anamnesis in the diagnosis and differentiation between severe fluorosis and developmental anomalies.

A11-FLUORIDE LEVELS IN THE PUBLIC WATER SUPPLY OF PIRACICABA

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The fluoridated water of public supply is one the major dental caries prevention method in a population level, however, if it is not in optimal level, it can not be effective or even though it can cause damages instead of benefits. **Objective:** The aim of this study was to analyze the fluoride concentration of public water supply in Piracicaba's city. **Methods:** Health agents collected samples in 35 preschools in a period of 4 months (April up to July 2004), in the same day of the month and in the same time. Water samples were analyzed by the electrode Orion 96-09 and analyzed by ions EA-940 previously calibrated with contained standards of 0.125; 1.0 μ gF/ml, with 1.0 ml of TisabII, or either, TisabII 50%. **Results:** The results showed that all samples were in an optimal level, however, some values were superior (0.97ppmF) and others were inferior (0.10ppmF) than optimal values. **Conclusion:** It can be concluded that Piracicaba has controlled fluoridated water in this evaluated period and the results showed the need and importance of a continuous control of fluoride in the water supplies. Support: FAPESP.

A12-DENTAL FLUOROSIS IN PUPILS FROM NONFLUORIDATED AREAS IN BAURU – SP

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Studies on fluoride continue to be performed by the world scientific community. Its anticariogenic effect is more and more confirmed, mainly by its presence in the oral cavity, intervening in the dynamics of establishment and progression of carious disease. The addition of fluoride to the water of public supply remains a broad method for the urban population. In Bauru, SP, fluoridation has been going on since 1975; in 1997, only 12% of its waters were not fluoridated, being 4 public schools located in this area. **Objectives:** Dental clinical exams were made in 12-year-old students that were permanent residents in this region to investigate dental conditions regarding caries and fluorosis. The identification of possible fluorosis sources was also evaluated, by utilizing a questionnaire applied to the school of students having fluorosis. **Methods:** The sample

comprised 121 students, distributed in four daytime schools. The children were examined in chairs, under natural light, by utilizing wooden spatulas and a mouth mirror. They were examined for caries and fluorosis through DMFT and Thylstrup & Fejerskov (TF) indexes, respectively. Results: The results showed a DMFT of 3.99 and the presence of fluorosis in 39.73% of the children, distributed as follows: degree 1 = 18.2%, degree 2 = 15.7%, degree 3 = 4.1% and degree 4 = 1.7%. Conclusions: We concluded that the CPOD obtained reached a value superior to that recommended by WHO for the year 2000 and that, although the area did not receive fluoridated water, the presence of fluorosis in the students confirms other available fluoride sources.

A13-EFFECT OF ULTRASONIC SETTING ON THE FLUORIDE RELEASE OF GLASS IONOMER CEMENTS

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Objectives: To compare the influence of the ultrasonic excitation on the fluoride release of restorative Glass Ionomer Cements (GICs). Methods: Three GICs were chosen for use in the study. Two were encapsulated [Ketac-Fill Plus Aplicap (3M ESPE) - conventional and Ionofil Molar AC Quick (VOCO)- high viscosity] and one was hand mixed [Vitremmer (3M ESPE)- resin-modified]. GICs were mixed following the manufactures' directions. Sixteen specimens (11 mm diameter and 1.5 thick) were prepared in Teflon mold for each material. Eight samples were ultrasonic excited and eight were not. Ultrasound, from a Piezon Master 400 dental scaler (EMS-Switzerland) was applied around the sample, following 15 seconds exposure. The samples were suspended individually in 4 mL of deionized water. The solution was changed daily and the fluoride concentration ($\mu\text{gF}/\text{cm}^2$) was measured during 7 days. Three-way ANOVA and Tukey Kramer tests were performed ($p < 0.05$) Results: The results showed that the fluoride release patterns were similar for all groups tested. The highest values were observed during the first days after preparation, decreasing sharply and then more slowly, tending to maintain constant after 7 days. All groups showed a decrease in fluoride release when ultrasonically excited. Ketac-Fill presented the highest influence in using the ultrasound. Conclusion: Ultrasound excitation decreased the fluoride release of all tested GICs. Support: CAPES and Bauru Dental School – University of São Paulo, Brazil.

A14-PREVALENCE OF DENTAL FLUOROSIS AND DENTAL CARIES IN SCHOOLCHILDREN OF A CITY IN GOIÁS, BRAZIL

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In most industrialized countries over the last two decades the prevalence of dental caries in children has decreased and the prevalence of dental fluorosis has increased. For planning health programs it is essential to know the epidemiologic conditions of a population. Objectives: To determine the prevalence of dental fluorosis and dental caries among schoolchildren, in Catalão, Goiás, Brazil. Methods: A random sample of 432 schoolchildren aged 7-12-year-olds was obtained. WHO (1997) criteria for dental fluorosis and dental caries diagnosis were used. Results: The analysis of dental fluorosis for the same ages presented major prevalence at 12 years-old and in female gender students. The percentage of questionable dental fluorosis (Dean's classification) was 34.0%. Only 3% of the sample presented dental fluorosis with scores very mild, mild and moderate. The DMFT index were 0.97; 1.20; 1.80; 1.62; 2.40 and 2.51 for 7, 8, 9, 10, 11 and 12 year-olds respectively. Conclusions: In this study, dental fluorosis is not a Public Health problem. The prevalence of caries in schoolchildren of Catalão, Goiás, Brazil was low. In average, the private schools showed better results than public schools. This reinforces the security and the importance of the adequate use of fluoridated water and fluoride dentifrices for caries prevention.

A15-BONE SURFACE AND WHOLE BONE AS BIOMARKERS FOR ACUTE FLUORIDE EXPOSURE IN RATS

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Objectives: This study was done to compare fluoride concentrations ([F]s) in surface and whole bone for up to 27 days following an acute oral dose of F. Methods: Four groups of 70-day-old Wistar rats received a single oral F dose (50 mg/kg body weight) while the control group received deionized water (n=10/grp). The groups were killed at 1, 3, 9 or 27 days after F administration and plasma and femurs were collected. F on the femur surface was removed from a circular area (4.52 mm²) by immersion in 0.5 M HCl for 15 s. The solution was buffered with TISAB and analyzed with the electrode. The subjacent bone was sectioned and ashed at 600°C. The ash and plasma were analyzed for F with the electrode following HMDS-facilitated diffusion. Bone [F] was calculated based on P analysis. Data were analyzed by Kruskal-Wallis and Dunn's test and by linear

regression ($p < 0.05$). Results: Peak plasma and bone surface [F]s occurred on day 1 ($0.26 \pm 0.14 \mu\text{g/mL}$ and $1801 \pm 888 \mu\text{g/g}$, respectively). Bone surface [F]s at 3, 9 and 27 were not statistically different from the control group. A significant increase in whole bone [F] was observed 3 days after F administration and the [F]s remained relatively constant thereafter. The mean (\pm SD) surface/whole bone [F] ratios for the control and F groups were: 2.45 ± 0.98 , 3.92 ± 1.32 , $1.610.82$, 1.73 ± 0.39 and 1.09 ± 0.28 , respectively. Plasma and bone surface [F]s were positively correlated ($r = 0.74$). Conclusions: Thus, bone surface was found to be a suitable biomarker for acute, sublethal F exposure at 1 day after F administration. Whole bone [F]s were significantly increased at 3, 9 and 27 days after F administration. Financial support: FAPESP(01/07967-7).

A16-PREVALENCE AND SEVERITY OF DENTAL FLUOROSIS IN SCHOOLCHILDREN OF 12 TO 15-YEARS-OLD FROM SALVADOR-BA, 2004

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Nowadays, it is important to diagnose the prevalence and severity of dental fluorosis caused by the increased use of fluoride products worldwide. In Brazil in areas where water fluoridation has optimal concentrations, researchers found fluorosis levels above 30% in general population. Objective: The aim of this work was to identify the prevalence and severity of dental fluorosis in schoolchildren of 12 to 15- years old in Salvador-BA. Methods: A cross-sectional study was developed with a multiple stage ruffled probabilistic sample of 2,110 students (12 to 15 year-old), from 40 public and private schools in Salvador, BA. Data were collected by a team of pre-calibrated examiners ($\kappa = 0.73$) according to WHO criteria (Dean Index). Additional information such as age, sex, ethnicity, general use of domestic fluoride were obtained through a questionnaire. A descriptive analysis was performed and the differences between groups were tested with chi-square test ($\alpha = 5\%$). Results: The prevalence of dental fluorosis was 22.72%, predominantly the "very mild" severity (17.87%). The proportion of children with fluorosis ranged from 32.82% in 12 years old to 17.03% in 15- years old. There were no statistically significant differences in ethnic groups ($p = 0.79$) and public and private schools ($p = 0.16$). The prevalence was higher in boys than girls ($p = 0.04$) and in 12 and 13 year-olds compared to 14 and 15 year-olds ($p = 0.00$). Conclusion: In Salvador, there was a low prevalence and severity of dental fluorosis in schoolchildren of 12 to 15- years old.

A17-BRAZILIAN FRUITS IN CHILDREN TOOTH PASTE – ANTIBACTERIAL ACTIVITY

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Fluoride-free toothpastes are suitable for infants since they avoid the intoxication risk with fluoride, however they should still act as an agent capable of controlling the dental biofilm. Objectives: This study evaluated the antibacterial activity against *S.mutans*, *S.sobrinus*, *Lactobacillus* spp. and *Candida* spp. of four fluoride-free toothpastes (Wellela®, First Teeth®, cashew extract and mango), one fluoridated (Tandy®) and chlorhexidine 0.12% as control. Methods: The yeast and bacterial species were incubated at 37°C for 24 hours in broth MH and BHI, respectively, and 300µL of each microorganism were inoculated in MH and BHI agar plate. Five wells measuring 4 mm in diameter were made in each plate and completely filled with one of the testing toothpaste. After incubation of the plates at 37°C for 24 hours, the zones of bacterial growth inhibition around the wells were measured and the values analyzed by the tests of Kruskal-Wallis and Mann-Whitney ($\alpha = 0.05$). Results: First Teeth® and Wellela® did not present antibacterial activity against any of the tested microorganisms. The toothpastes containing extract of fruits showed similar activity against all strains, except for *S.sobrinus*, on which the cashew paste induced a larger inhibition, statistically similar to Tandy®. This latter toothpaste produced results statistically similar to chlorhexidine, except for *Candida* and *Lactobacillus*, against which the inhibition was larger. Conclusions: Fluoride-free toothpastes containing extract of fruits possess antibacterial activity similar to fluoride-containing toothpastes, and could be used with larger safety in infants.

A18-PLASMA AS A BIOMARKER OF BONE FLUORIDE CONCENTRATION IN YOUNG AND OLD RATS

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Objectives: This study evaluated the use of plasma as a biomarker of bone fluoride (F) concentration in young and old rats. Methods: Eighty male Wistar rats were received as weanlings and were assigned to 4 groups ($n = 20/\text{gr}$), that differed according to the F concentration they received in the drinking water. Groups 1, 2, 3 and 4 received water containing 0(control), 5, 15 and 50 mg F/L, respectively. When half of the rats were 90 days old, they were killed and plasma and femur were collected. The other rats were killed when they were 365 days old. Bone was ashed at 600°C overnight. The bone ash and the plasma were analyzed for F with the ion specific electrode, following HMDS-facilitated

diffusion. Data were tested for statistically significant differences by ANOVA and Tukey's test, t test and linear regression ($p < 0.05$). Results: Mean plasma F concentration ($\mu\text{g/mL}$) for 90-day-old rats was $0.025 \pm 0.002a$, $0.037 \pm 0.007ab$, $0.057 \pm 0.011b$ and $0.145 \pm 0.029c$, and bone F concentrations ($\mu\text{g/g}$) were $207 \pm 21a$, $481 \pm 76a$, $1217 \pm 188b$ and $2735 \pm 355c$, for groups 1, 2, 3 and 4 respectively. For 365-day-old rats, plasma ($\mu\text{g/mL}$) F concentrations were $0.031 \pm 0.003a$, $0.045 \pm 0.010ab$, $0.063 \pm 0.016b$ and $0.118 \pm 0.026c$ and bone F concentrations ($\mu\text{g/g}$) were $694 \pm 152a$, $1376 \pm 583b$, $1732 \pm 564b$ and $4494 \pm 343c$ respectively. The bone fluoride concentrations were higher for the rats that were 365 days old when compared to those that were 90 days old at death. Significant positive correlations were found between plasma and bone F concentrations for 90-day-old ($r=0.91$, $p < 0.0001$) and 365-day-old rats ($r=0.82$, $p < 0.0001$). Conclusion: The data suggest that plasma is a suitable biomarker of bone fluoride concentration in young and old rats. Financial support: CAPES and FAPESP.

A19-COMPARISON AMONG THREE DENTAL FLUOROSIS INDEXES IN PERMANENT DENTITION OF SCHOOLCHILDREN

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Objective: To compare the DEAN, T-F and TSIF dental fluorosis indexes in relation to prevalence of surfaces, teeth and locality, and to verify the statistical correlation among them. Methods: The sample consisted of 461 schoolchildren, ages 12 - 14 years, born and reared in 3 cities in the State of Sao Paulo from 2 years of age. A total of 153 were from Cesario Lange with a fluoride concentration in water supply of 1.4 ppm F, 142 from Piracicaba (0.7 ppm F) and 166 from Iracemapolis (<0.3 ppm F). One previously calibrated examiner carried out the clinical examination, after tooth brushing, using plane mirror, probe, artificial light and air drying of the teeth for 1 min. Results: Premolars, second molars, and occlusal surfaces were the most severely affected. The three indexes showed similar percentages of children affected in the three cities: 32.7%, 16.9% and 4.2% for the DEAN index, 33.3%, 17.6% and 4.2% for the T-F index and 32.7%, 16.9% and 4.2% for the TSIF index. Correlation coefficients among indexes were high, ranging from 0.932 to 0.996. Conclusion: There were no difficulties in using the three indexes in the field trials, thus the use of any one may be recommended in regions with similar fluoride concentrations to those of this study.

A20-PREVALENCE OF DENTAL FLUOROSIS IN CHILDREN WITH CLEFT LIP AND PALATE

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Objective: to describe the prevalence of dental fluorosis and its distribution according to degrees in 189 children with cleft lip and palate, regardless of gender or race, at the age range 8 to 12 years old, from different areas in Brazil. Methods: the Dean index was employed for diagnosis of dental fluorosis, and clinical examinations were performed by visual inspection after professional prophylaxis and air-drying, under artificial light. Questionnaires were applied to the parents to evaluate the utilization of systemic fluoride supplementation and fluoridated dentifrice during the first three years of life of the child. Results: 20.6% of the children presented fluorosis, primarily classified as questionable (46%) and mild (33%). Only 5% of the children received systemic fluoride supplementation, whereas 95% initiated the regular utilization of fluoridated dentifrice before 3 years of age. Conclusion: the occurrence of dental fluorosis in children with cleft lip and palate follows the parameters observed for the general population, with predominance of mild manifestations.

A21-HYDROCHLORIC ACID-PUMICE ENAMEL MICROABRASION FOR REMOVAL OF FLUOROSIS STAINS: SIX YEAR RESULTS

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Objective: The present study aimed to evaluate the clinical efficacy of 18% hydrochloric acid with pumice on the removal of enamel opacities suggestive fluorosis. It details two cases reports involving the use of microabrasion technique described by Croll and Cavanaugh in 1986. Methods: Thylstrup & Fejerskov index (TF) was used for opacities classification. Two sisters 8 and 9-years-old showing brown fluorosis stains (TF 5 and 4 respectively) affecting both permanent maxillary incisors were treated as follows: In the first stage (1998), these teeth were treated using an 18% hydrochloric acid-pumice paste on the discolored enamel in a carefully controlled procedure. In one session, 5 applications of this mixture were performed, followed by finishing and polishing. A topical neutral fluoride gel was applied and photos were taken. The patients were followed-up and clinical improvement in appearance was observed as time passed. Five years later (2003), after the completion of the permanent dentition, all other permanent teeth of both patients were treated, by the same technique, except for second molars. Photos were taken immediately and after

one year (2004). Results and Conclusions: Six Years clinical results in upper incisors and one year result in the other teeth showed that microabrasion using hydrochloric acid is a conservative method and also provides a long lasting and permanent color modification of superficial enamel coloration.

A22-CARIES EXPERIENCE AMONG SCHOOLCHILDREN IN RELATION TO COMMUNITY FLUORIDATION STATUS AND TOWN SIZE

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Objective: The present study was to determine the caries experience of schoolchildren aged 7-12 years from the Southeast area of São Paulo State, Brazil, in 1998, according to town size and fluoridation status. Methods: Data for this cross-sectional study were based on the data bank from the Epidemiological Survey of São Paulo State provided by the State Health Department. After stratification by fluoridation status and town size 29 towns were randomly selected to represent the Southeast area of São Paulo State, Brazil, and a total of 13,480 schoolchildren were randomly selected for this study. Calibrated dentists performed clinical examinations according to the WHO criteria. Results: Caries experience and prevalence were significantly lower in fluoridated areas (1.9 DMFT, 2.1 dmft, 20% caries free) than in non-fluoridated areas (2.4 DMFT, 2.4 dmft, 13% caries free). According to town size, DMFT and caries prevalence were significantly higher in small towns (2.3 DMFT, 13% caries free), followed by medium-sized (2.1 DMFT, 17% caries free) and large cities (1.6 DMFT, 27% caries free). Among 12-year-old children, caries prevalence was predominantly moderate or high in small and medium-sized municipalities, whereas in large cities it was moderate or low. Conclusion: The results suggest that water fluoridation is an essential public health measure and that town size may affect caries distribution in the Southeast area of São Paulo State.

A23-ENDEMIC AREA OF FLUOROSIS IN VENÂNCIO AIRES/RS – A POLITICAL AND SOCIOLOGICAL ISSUE

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Objective: The purpose of this study is to map out the occurrence of fluorosis in school-age children in the rural community of Venâncio Aires, evaluating perceptions and identifying the social and political variables that perpetuate the problem. Methods: The areas mapped were those with

water distributed through alternative systems which contained an excess of fluoride, identifying the wells and schools of the area. Unstructured interviews were applied to collect data related to place and time of residence, origin of water consumed, perception of people examined as to oral health, appearance of teeth and knowledge of fluorosis. Children were examined to evaluate cavity incidence (number of teeth affected) and degree of fluorosis (prevalence and severity). Meetings were called with manegears and professionals to evaluate measures of control and difficulties found. Water samples of these localities were collected and analyzed. Results: In the municipality of Venâncio Aires the problems were analyzed presenting three focuses: a) Health and Sanitary Structures – Around Estância Mariante there are 8 wells with natural fluoride levels that vary between 4 and 6.67 mg/F in the water. With dental examination 100% of the children who used water from the deep wells (canalized) since birth showed evidence of fluorosis between TF4 and TF7 degrees. Those who use water from shallow wells, do not show fluorosis but have a constant presence of cavities, with a high degree of decay. b) Social and Political Factors – The high awareness of the population as to the damages involved, the manifestation of discontent and social exclusion suffered by those contaminated has not been sufficient to move the social and political conscience of institutions responsible for this. c) Ethical - Despite the initiative in restoring the affected teeth, the statements collected at the meetings, show the low level of commitment of public health professionals in prevention, limitation and rehabilitation of damages. Conclusion: The presence of fluorosed teeth with severe destruction is evident in areas where the water is contaminated with excessive natural fluoride. The maintenance of the problem is due to lack of interest in implementation of effective health public politics to keep the population healthy or reduce health risks and a lack of institutional commitment. Support: State Health Department of Rio Grande do Sul.

A24-FACTORS ASSOCIATED WITH DENTAL FLUOROSIS IN A FLUORIDATED AREA

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Objective: The aim of this study was to analyze the factors associated with dental fluorosis in 12-15 years old adolescents. Methods: This is a case-control study where the cases were identified by one calibrated examiner (Kappa=0.90) in twenty-three public and private schools. The controls lived in the same region as the cases. Both, case and controls were living in Ribeirão Pires, city located at Southeast of São Paulo Metropolitan Area, where the fluoridated tap water initiated in 1985. Parents answered a questionnaire applied by trained interviewers including demographic, geographic, educational level and fluoride exposure variables. The analyses were done using Chi-

square test and multiple logistic regression model. The study was approved by the Research Ethics Committee of the Public Health School at University of São Paulo. It was analyzed 190 controls and 319 cases. Results: The final logistic regression model showed significant risk for dental fluorosis in some periods of adolescents' life course, such as in those responsible for placing fluoridated dentifrice on toothbrush at age 4-6 years (OR=2.23; p=0.001); using fluoridated toothpaste just on ages 1-3 years (OR=2.44; p=0.026) or 4-6 years (OR=3.27; p=0.026), or all time (OR=2.70; p=0.024); independent of age, educational level of the father, the presence of fluoridated water in the residence and fluoride administration on preschool. Conclusions: The authors recommend planned actions forward to reinforcement the understanding of the parents for the correct use of the fluoridated toothpaste.

A25-RELATIONSHIP BETWEEN DENTAL FLUOROSIS AND EARLY UTILIZATION OF FLUORIDATED DENTIFRICES

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Objective: The aim of this study was to relate the presence of dental fluorosis with the early utilization of fluoridated dentifrices. Methods: Initially, the mothers of 194 children (7-12 years) attending the Children's Clinic of Cesumar-PR, answered to an objective questionnaire concerning the history of utilization of dentifrices by their children. Thereafter, the permanent anterior teeth of the children were examined after air-drying and under artificial light, according to the Dean index. Results: The prevalence of dental fluorosis in all children examined was 25.3%, with a higher prevalence of moderate degree (77.7%). From all children, 86.6% initiated utilization of dentifrice before 3 years, however 64.4% did not present dental fluorosis, and therefore the Spearman test did not reveal any significant correlation (p<0.05) between dental fluorosis and the onset of utilization of dentifrice at this age. Accomplishment of toothbrushing by the child before 3 year of age (14.4%) also was not correlated (p<0.05) with the presence of dental fluorosis. With regard to the amount of dentifrice used on the toothbrush, in the total sample, 33% applied it in the longitudinal direction; 42.8% in the transversal direction and 16.5% used a pea-sized amount of dentifrice. No dependent association (p<0.05) could be found between dental fluorosis and the habit of utilization of dentifrice on the toothbrush without supervision of the caretakers. Conclusion: Considering the present outcomes, the early utilization of fluoridated dentifrices, when evaluated as an isolated variable, did not lead to the occurrence of dental fluorosis in the study sample.

A26-KNOWLEDGE OF PREGNANT WOMEN AND MOTHERS ON THE UTILIZATION OF FLUORIDATED DENTIFRICES IN THEIR CHILDREN

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Objectives: The aim of this study was to evaluate the knowledge of a group of pregnant women and a group of mothers on the utilization of fluoridated dentifrices in their children. Methods: A questionnaire was applied to 290 mothers (G2) attending an educational and preventive program, and also to 150 pregnant women (G1) from Paraná-Brazil. Data were processed in the Statistica v. 5.0 software. Results: The results indicated that 86.67% of the G1 and 90.69% of G2 were aware of the importance of fluoridated dentifrices for caries prevention. With regard to the amount of fluoridated dentifrice to be employed in children, 43.33% (G1) and 49.31% (G2) made use of the transverse technique; 36.67% (G1) and 34.82% (G2) applied dentifrice on half of the length of the bristles; 20% (G1) and 15.51% (G2) applied the dentifrice throughout the length of the bristles, with no significance between groups (p=0.367). Concerning the onset of utilization of fluoridated dentifrice, 60% (G1) and 33.10% (G2) started its utilization after appearance of the first teeth; 38.67% of G1 and 66.20% of G2 initiated usage of dentifrice from 2 to 3 years old, with statistically significant difference between groups (p=0.000). Regarding the daily frequency of utilization of the fluoridated dentifrice, 76.67% of G1 and 65.17% of G2 used it for each toothbrushing, 15.33% of G1 and 16.89% of G2 employed it three times a day, 7.33% of G1 and 8.62% of G2 made use of it only twice a day and 8.97% of G2 used it once a day, with significant difference between the two groups (p=0.004). Conclusions: It was concluded that mothers attending the educational program (G2) demonstrated greater knowledge on the utilization of fluoridated dentifrices in their children than pregnant women (G1), which indicates the need to provide information to the latter, in order to reduce the risk of dental fluorosis during the first years of life of their upcoming children.

A27-DISTRIBUTION OF DENTAL FLUOROSIS ACCORDING TO THE DEGREE AND AFFECTED TEETH

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Dental fluorosis occurs because of the ingestion of fluoride during formation of the teeth; clinically, it presents

alterations in the color and structure of dental enamel, of variable intensities, which may reach one or more groups of deciduous and/or permanent teeth. Objective: The objective of this study was to investigate the distribution of dental fluorosis according to the degree and group of teeth. Methods: The subjects were schoolchildren attending public state schools during the day, aged 12 years old, of both genders, and living at the areas related to their schools since birth. The schools were classified in three areas, according to the water supply provided by the Water and Sewerage Department of Bauru – DAE, up to 1997: WTS (Water Treatment Station), FW (Fluoridated Well) and NFW (non-fluoridated well). The sample comprised 375 students. The TF index (Thylstrup & Fejerskov) was employed for recording of fluorosis. Gender and race were recorded. The χ^2 test, Goodman test and descriptive measurements were applied. All inferential conclusions were drawn at the significance level of 5%. Results: Distribution of gender and race in the study population and in the presence of fluorosis was rather similar. Degree 1 was the most frequently observed (44.97%), followed by degree 2 (36.91%). The maxillary arch was the most affected. It was observed that premolars were the most affected teeth (22.73%), followed by the incisors (29.78%). Conclusion: The frequency of response of the different degrees of fluorosis did not present any significant effect on the source of water supply.

A28-EVALUATION OF THE FLUORIDE CONCENTRATION AND CONSUMPTION OF BOTTLED WATER

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Objective: Considering water as an important source of fluoride intake, the increase in the prevalence of dental fluorosis and also in the consumption of bottled water, the aim of this study was to evaluate the consumption of bottled water in the city of Bauru, its fluoride (F) content and the employment of home water purifiers. Methods: The study was performed in several residential areas on 1,000 homes in a stratified sample achieved by blocks, on which each block corresponded to a residential block. For randomization purposes, the residential blocks were numbered within the 17 areas established by the city plan. Collection of the samples of bottled water was accomplished on previously labeled 50-mL plastic flasks. For F analysis, the ion-sensitive electrode (Orion 9609) was employed after buffering with TISAB II. Information on the consumption of bottled water and the employment of home water purifiers was achieved by means of application of a questionnaire. Results: It was noticed that around 29.72% of the city population makes use of bottled water. From the 260 samples analyzed from 29 different brands of water, the F concentration ranged from 0.049 to 1.515 ppm. The label of one brand stated an F

concentration of 0.220mg/L; however, the analysis revealed an F concentration of 1.515mg/L. Moreover, some brands did not specify the F concentration on the label, and the analysis has demonstrated concentrations ranging from 0.049 to 0.924mg/L. Conclusions: The results demonstrate a large variation on the fluoride concentration and reinforce the importance of the control of such waters by the health surveillance service. Support: FAPESP.

A29-CARIES RISK AND ITS RELATIONSHIP WITH ENAMEL DEFECTS IN CAMPINAS REGION

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Objectives: Enamel defects have been related to a greater occurrence of caries lesions. Few studies are found about this condition so, the aim of this study was to assess the prevalence of these defects in Campinas region as well as associating its presence with caries risk. Methods: The sample was composed by 1,091 schoolchildren, 12 years old, enrolled in 106 schools from 14 Campinas municipalities. The adolescents were examined during the period 2000/2001. Prevalence of enamel defects (ED) was considered when adolescent showed demarcated opacities (OD) and/or hypoplasia (HIP) in one or more tooth/teeth and presence of fluorosis when adolescent presented diffuse opacities (FLU). Caries risk was considered when adolescent showed DMFT>0. Chi-square test and odds-ratio (5.0% significance) were used. Results: ED prevalence was 12.0% being 9.0% of OD and 3.0% of HIP. FLU was 6.2%. ED was related to caries risk ($p=0.0066$) with 1.85 more chance of adolescent has caries ($1.16<OR<2.98$) There was no relationship between OD and caries risk ($p=0.0851$), however there was a relationship between HIP and caries risk ($p=0.0225$) with 3.20 more chance of adolescent has caries ($1.06<OR<10.81$). There was no relationship between FLU and caries risk ($p=0.0568$) being the OD of $0.43<OR<1.04$. Conclusions: Data showed the importance of discriminating kinds of defects emphasizing that hypoplasia presence indicated bigger risk of adolescent comes to have caries.

A30-PRESCHOOLERS AND SCHOOLERS CARIES EXPERIENCE AFTER FORTY YEARS OF WATER FLUORIDATION IN CAMPINAS – SP, BRAZIL

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Many studies have showed a decreasing in caries prevalence, mainly in schoolchildren. Monitoration of this decreasing situation must be of essential consideration to plan future actions in public health. Objectives: This study verified caries experience and dental Care Index of preschoolers and scholars of a big city, located at São Paulo State in 2002, as well as caries trend after 40 years of water fluoridation. Methods: The sample was randomly composed by 460 schoolchildren in 2002 (251 children - 5 years old and 209 - 12 years old) attended at public schools. DMFT and dmft indexes followed WHO criteria (1997) . Care Index was calculated to analyse dental care percentage (CI= filled teeth/DMF ratio x 100. Secondary data were used to analyse the caries tendency in the latest 40 years (1961, 1976, 1992 and 1996). Results: dmft at age 5 was 1.68 (IC 95%: 1.34 – 2.02) and the Care Index was 23.7%. DMFT at age 12 was 1.34 (IC 95%: 1.11 – 1.58) and the Care Index was 59.4%. After 40 years of water fluoridation, a decreasing of 72.9% and 81.8% could be verified for dmft and DMFT respectively . Conclusions: The results revealed a low caries experience and a high Care Index comparable to described international studies, as well as an evident reduction on the caries index in the last decades.

A31-EFFECT OF IRON ON THE REDUCTION OF DEMINERALIZATION OF BOVINE ENAMEL AND ON THE COMPOSITION OF THE DENTAL BIOFILM FORMED “IN SITU”

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Objectives: This study investigated in situ the effect of iron (Fe) on the reduction of demineralization of bovine enamel, as well as on the composition of dental biofilm. Methods: Twelve volunteers were included in this blind crossover study, which was conducted in two stages of 14 days each. For each stage, the volunteers received palatal appliances containing 4 blocks of bovine enamel (4X4X2.5mm). Six volunteers dripped a solution of 15 mmol L⁻¹ ferrous sulphate (FS) onto the fragments and the remaining 6 dripped deionized water (DW) (8 times/day). After five minutes, a fresh 20% w/v sucrose solution was dripped onto all enamel blocks. During the experimental period the volunteers brushed their teeth with non-fluoridated dentifrice. After each stage, the percentage of surface microhardness change (%SMHC) and area of mineral loss (DZ) were determined on enamel and the dental biofilm formed on the blocks was collected and analyzed for F, P, Ca, Fe and alkali-soluble carbohydrates. Results: The results (means±SD) for the treatments (FS and DW) were: F(µg/g)= 2,93±0,77^a; 2,92±0,61^a; P(mg/g)= 0,81±0,33^b; 1,67±0,94^a; Ca(mg/g)= 7,75±6,56^a; 6,34±5,32^a; Fe(mg/g)= 0,84±0,39^b;

3,49±2,69^a; alkali-soluble carbohydrates(mg/g)= 27,67±13,25^a; 39,21±19,60^a; %PDS= -37,1±22,5^b; -19,4±2,1^a; ÅZ= 2049,3±1090,0^b; 1009,3±397,5^a, the distinct letters differ statistically (p<0.05). Conclusions: The use of sulfate ferrous promoted significantly increases in the iron and phosphorus concentrations, while on the enamel blocks caused smaller %SMHC and smaller mineral loss. Thus, Fe ion was able to reduce of demineralization of bovine submitted to high cariogenic challenge.

A32-VERIFICATION OF RESIDUAL FLUORIDE IN SALIVA OF CHILDREN SUBMITTED TO PREVENTIVE METHODS WITH FLUORIDE

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Objective: The objective of this study was to compare levels of fluoride in saliva of children after application of fluoride water (group 1), fluoride toothpastes (group 2), fluoride gels (group 3), fluoride sealants (group 4) and glass ionomer cement (group 5). Methods: One hundred children, aged 7-12 years old, were selected. They were separated in 5 groups with 20 each one. The group 1 is the Control Group. The saliva was collected at baseline, immediately after treatment, and then, at 30 minutes after the use of the fluoride product. Results: It was noted a higher fluoride concentration after application of any one of preventive method. This concentration, after 30 minutes continued higher than that observed before treatment. In group 2, the fluoride concentration after the use of toothpaste was closed to that observed at baseline and 30 minutes after. The group 3 showed higher variation of concentration of fluoride. Conclusion: It was concluded that the simultaneous use of preventive methods must be avoided, since the fluoride concentration in saliva is closed related to its action on the enamel and environment. The indiscriminate use of topical fluoride products may result in fluorosis.

A33-IN SITU EVALUATION THE EFFECT OF FLUORIDE DENTIFRICE ON WEAR CAUSED BY EROSION ASSOCIATED OR NOT TO ABRASION

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The loss of dental hard tissue caused by erosion associated to abrasion is a reality in Dentistry and the effect of fluoride in this process is contradictory. Objectives: Thus, this study assessed the erosion produced by the soft drink

Coke (Coca-Cola®) associated or not to toothbrushing with fluoride dentifrice (Crest®) on human enamel blocks. The aim was to evaluate the immediate and residual effect of fluoride in abrasion and erosion, respectively. Methods: Ten volunteers participated in an in situ crossover model, with 2 phases. They wore intra oral palatal appliances containing 6 human enamel specimens which were submitted to a fluoride or placebo regimen, divided into 2 groups (erosion and erosion with abrasion) in each period, totalizing 4 groups (G1-erosion; G2-erosion+toothbrushing; G3-erosion+fluoride; G4-erosion+toothbrushing with fluoride toothpaste). The appliance was immersed in 150 mL of the drink for 5 minutes, 4 times/day. After that, the specimens were brushed in only one side. Results: The Hommel Tester T1000 Rugosimeter was used to trace the normal/treated profile and the mean wear values for G1, G2, G3 e G4 were 3.63 µm; 6.84µm; 3.54 µm and 5.38µ, respectively. There was statistical significance between G1 x G2; G3 x G4 e G2 x G4 (Anova and Tukey, p<0.05). Conclusions: It was concluded that Coke promoted human enamel superficial erosion and that immediate toothbrushing after drinking enhanced loss of dental hard tissue. Fluoride had no residual effect in erosion, but had an immediate effect, reducing the effect of erosion associated to abrasion.

A34-IMPLANTATION OF THE CONTROLLED FLUORIDATION OF THE PUBLIC SUPPLYING WATER IN THE CITY OF BAURU – SP

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The fluoridation of public water supply waters is an important measure of Public Health in the prevention of the dental caries. Fluoride is a chemical element present in many products, beyond the supplying water. This strengthens the necessity of a rigorous control, by professionals involved with public health, of the fluoride concentration in the public water supply. The results of studies previously carried out and the singularity of the system of public supplying of Bauru, justify the necessity of monitoring the fluoride concentration in the city. Objective: To monitor the fluoride concentration in the public water supply in Bauru, SP. Methods: Collection of one water sample was done once a month, since March, 2004, in 60 points distributed along the 19 sectors of supplying of the city, in a date established by drawing. Fluoride was analyzed with the electrode, by the direct method. The collected data were analyzed by the use of relative and absolute frequencies represented and described by means of tables and graphs. Results: 339 water samples were collected and analyzed, from March until August, 2004. The smallest fluoride concentration found was 0,11 µg F/L (sample from Sector XIII, in March) and the greatest was 1,13 µg F/L (sample from Sector XVIII, in April), with a large variation between

all the samples from the same month as well as the samples from the same sector throughout all the months. Conclusion: Results show important variations in the fluoride concentration of the public water supply in Bauru, which indicate that the monitoring must go on. Support: PIBIC/USP/CNPq.

A35-KNOWLEDGE OF PEDIATRIC DOCTORS AND DENTISTS FROM BAURU AND MARÍLIA ABOUT FLUORIDE

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Objective: The aim of this study was to evaluate the knowledge of health professionals, specifically pediatric doctors and dentists, who work with children, in respect to the correct indication and use of fluoridated compounds, their appropriate and safe concentrations, as well as their potential chronic and acute toxicity. Methods: Ninety-one pediatric doctors and seventy-two pediatric dentists from Bauru and Marília municipalities were visited. After agreeing in participating, they received a questionnaire with 22 questions. They immediately filled in and returned the questionnaires. Data obtained were analyzed by descriptive statistics, using absolute and relative frequencies, represented by tables. Results: Some pediatric drugs containing a combination of vitamins and fluoride are usually prescribed by pediatric doctors, while fluoride gels, varnishes and rinsing solutions are often recommended by pediatric doctors. It was not established a relation between the knowledge of pediatric doctors and dentists regarding the sources of fluoride intake and gender, time of graduation, age, place of graduation, city and area of working (public, private area or both). Conclusion: The results suggest that the knowledge of pediatric doctors and pediatric dentists who work in Bauru and Marília, regarding the presence of fluoride in various sources of intake is insufficient and, in some cases, concerning, with respect to the prevention of dental fluorosis. Financial support - FAPESP 03/13437-6.

A36-PARENTS' AESTHETIC PERCEPTION OF DENTAL FLUOROSIS

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Objective: analyze the parents' perception of the aesthetic of children's fluorosis's teeth. Methods: 134 parents of children aged 6 to 12 years old, students of Levindo Lopes Public School, Belo Horizonte-MG. All children were fluorosis' porters in varied degrees. The parents answered a questionnaire about their perception of

fluorosis stains on the children's teeth, approaching the aesthetic subject and its impact on children social life. Of the questionnaires distributed, 131 were returned to the researchers (97.8%). This research was approved by the Ethics in Research Committee of UFMG (ETIC 119/00). Results: about 50% of the parents have noticed stains on the children's teeth, being 56.7% parents of boys and 45.1% parents of girls. Of the parents that have noticed stains on the children's teeth, most considered the stains prejudicial to the children (72.2%). Most of the parents associated the stains to decay (19.7%), toothache (7.6%) and bad breath (9.1%). Besides, 12.1% of the parents considered the stains non-aesthetics. Conclusions: fluorosis stains, even at low level of severity, are noticed by lay people, and most of the time, are considered prejudicial to the children. It is still observed the parents' little knowledge of the consequences of the dental fluorosis, once they associated the stains with other oral cavity diseases. Support: PIBIC/CNPq/UFMG.

A37-DENTAL FLUOROSIS PERCEPTION AND TEETH APPEARANCE PLEASURE IN STUDENTS LIVING AT FLUORIDE HIGH LEVELS AREA

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Objectives: To evaluate dental fluorosis perception and teeth appearance pleasure in students according to parents, dentists observers and themselves reports. The study took place in an area with fluoride purport below optimal level. Methods: In 2004, an epidemiologic study was realized at the Assistance District (Rio Claro city-SP). The fluoride means level in water supply was measure and the value found was 1.5 ppm. Dean index (WHO, 1997) was used to fluorosis condition. Besides that, it was evaluated the perception of fluorosis and the satisfaction about teeth appearance through questions for students, their parents and dentists observers. All the students present in the local public school at the moment of the exam was realized were included (n=96), with ages from 6 to 17 years old. Results: The fluorosis prevalence was 42.7%. 40.7% of the total students presented mild fluorosis (degrees 2 and 3) and 2.0% presented moderated fluorosis. Despite the high index of alteration prevalence, most part of the interviewed people showed to be satisfied about their teeth appearance (72.3%). Other kinds of alterations like dental alignment (51.4% of dissatisfaction) was mentioned to be higher important than fluorosis. Only 9.1% (n=3) from the students that had presented fluorosis related the presence of dental stains as sign of dissatisfaction. Considering the students that presented fluorosis, 73.2% of the parents showed to be

satisfied about the appearance of their children's teeth and this proportion was higher among the dentists observers (80.5%). Conclusion: Dissatisfaction about dental appearance was not observed when dental fluorosis with mild and very mild degrees were present.

A38-UTILIZATION OF FLUORIDATED DENTIFRICES IN EARLY CHILDHOOD: EVALUATION OF PARENTAL KNOWLEDGE

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Objective: to observe the knowledge of parents/caretakers as to the daily utilization of fluoridated dentifrices for toothbrushing in children during the early childhood. Methods: a semi-structured interview was applied to 100 caretakers of children with cleft lip and palate attending the HRAC/USP. Moreover, the caretakers were asked to indicate the amount of dentifrice routinely employed for toothbrushing in children, by means of selection of one option of toothbrushes with dentifrice numbered 1 to 5 in increasing order of amount. Results: for analysis of the results, the numbers assigned to the toothbrushes with dentifrice were grouped according to the amount in: adequate, for options 1 and 2; and inadequate, for options 3, 4 and 5. The χ^2 test and the Fisher's exact test were employed for analysis of the association between previous preventive advice and the amount of dentifrice employed, which revealed a statistically significant difference at the 5% level. Evaluation of correlation between the educational level of caretakers and the amount of dentifrice was conducted by the Spearman test, which indicated a statistically significant positive correlation ($p < 0.05$). Conclusion: it was concluded that, despite the advice and education on oral health, many caretakers, possibly influenced by their educational level, presented to use inadequate (excessive) amounts of fluoridated dentifrice for toothbrushing of children during early childhood. Considering the period, this represents a risk factor to dental fluorosis.

A39-EFFECT OF TOPICAL APPLICATION OF TIF₄ ACIDULATED SODIUM FLUORIDE AND FLUORIDATED VARNISH ON THE IN SITU ENAMEL DEMINERALIZATION

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Objective: it was to evaluate the anticariogenic effect of acidulated sodium fluoride (ASF- TOP GEL), fluoride varnish (Duraphat®) and titanium tetrafluoride solution during a cariogenic challenge. **Method:** The present study was performed in four different phases (control, acidulated sodium fluoride, titanium tetrafluoride and fluoride varnish) of 14 days each; with seven days wash-out in between. Twelve volunteers participated in the study, which used palatine intra-oral devices submitted to previous treatment, in agreement with each phase. Sucrose solution of 20% was dripped out 10 times a day over the blocks. At the end of each phase the analyses of longitudinally microhardness, microorganisms, as well as evaluation of fluoride and alkali soluble glucans were accomplished. **Results:** With relation to the results of microhardness, lesion area and DZ, it was observed significant values ($p < 0.05$), mainly in relation to the titanium tetrafluoride and the fluoride varnish, when compared to the other studied groups. These findings were confirmed through the evaluation of the values of mutan streptococci percentage in relation to total streptococci and of the mineral volume data. The analysis of the fluoride concentration in the biofilm, presented statistical difference for the group of the fluoride varnish ($p < 0.05$). The results of streptococci counts and glucan concentration did not present significant differences ($p > 0.05$). **Conclusion:** The data suggested that the association of low and high fluoride methods, as well as the use of high fluoride concentration products, were effective mainly for individuals exposed to a high cariogenic challenge. Supported by CAPES.

A40-ATTEMPT TO IMPROVE ANTICARIOGENIC ACTION OF FLUORIDE VARNISHES

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Fluoride varnishes were developed to reduce the fluoride loss after topical application. However, some fluoride is still washed away by saliva. **Objectives:** The aim of this study was to evaluate an experimental coat over these varnishes regarding anticariogenic action. **Methods:** After being subjected to the surface microhardness test (SMH), bovine enamel blocks were randomized into 5 experimental groups ($n=14$): negative control (NC-varnish without coat), Duraphat® (Dura), Duraphat® with coat (Dura+coat), Duofluorid XII®, and Duofluorid XII® with coat (Duo+coat). After being treated, the teeth were submitted for 6 hours of pH-cycling. After which, the varnish was removed with a blade and acetone. The teeth were submitted again for pH-cycling for a total duration of 7 days. Next, percentage change of surface microhardness (%SMHC) was calculated. **Results:** The %SMHC was statistically lower to all groups compared to NC. There were no differences between groups

Dura, Dura+coat, Duo and Duo+coat (analysis of variance, $p < 0.05$). **Conclusions:** Although varnishes are a useful tool to prevent dental caries, the use of a coat did not enhance carious preventive action. Thus, there is no reason for use a secondary coat for fluoride varnishes.

A41-DENTAL CARIES AND FLUOROSIS PREVALENCE IN 30 YEARS OF FLUORIDATION OF COMMUNITY WATER SUPPLY IN PIRACICABA, SP

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Objectives: The present study aimed to analyze the change in dental caries prevalence in the last 30 years and dental fluorosis in the last 10 years in Piracicaba after 30 years of fluoridation of community water supply (0.7 ppm) from the evaluation of epidemiological surveys performed between 1971 and 2001 in 12-year children. **Methods:** It was used DMFT index to dental caries and T-F index to fluorosis. The calibration was performed using the percentage of concordance (> 0.81) to the surveys from 1971 to 1997 and Kappa statistics (> 0.91) to 2001, to caries as well as fluorosis. Polynomial regression was performed to analyze caries and Chi-square test was used to fluorosis analysis ($p < 0.01$). **Results:** The results showed a reduction percentage of the DMFT index of 78.84% ($r^2 = 0.98$) in the period from 1971 to 2001 and an increase of fluorosis of 11.0% ($p < 0.01$) between 1991 and 2001. **Conclusion:** The data from this study showed an effective reduction of caries after 30 years of fluoridation, however, simultaneously, with a fluorosis increasing.

A42-INVESTIGATION OF THE PREVALENCE OF CARIES AND DENTAL FLUOROSIS IN THE PERMANENT DENTITION

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Objectives: The aim of this study was to observe the prevalence of caries and dental fluorosis by means of the DMFT and DMFS indexes, Dean index (DI) and the Thylstrup and Fejerskov index (TFI). **Methods:** The sample comprised 737 schoolchildren aged 12 years old from private and public schools at the city of Ipirorã-PR, a fluoridated area with 0.8 ppmF. Two professionals conducted a collaborative evaluation of the buccal and occlusal aspects of all permanent teeth by the TFI, and of the two teeth most

affected by the DI, under natural light. Results: The overall DMFT was 1.9 ± 2.0 , and the DMFS was 2.8 ± 3.3 , with 49.4% of dental fluorosis. There was predominance of the mild forms of fluorosis, with 32% on TFI=1 and 15% on TFI=2. The DMFT was 1.3 ± 0.2 ($p=0.001$) for the private schools and 1.9 ± 0.7 for the public schools, and the DMFS was 1.9 ± 0.4 and 2.9 ± 0.1 ($p=0.001$), respectively. Distribution of fluorosis (TFI) was similar (49%) for the private and public schools. Children living at the city for less than 10 years presented a higher DMFS (3.3 ± 0.2) than those living there for longer periods (2.7 ± 0.1), with significant difference ($p=0.043$). With regard to dental fluorosis, the time variable did not yield any significant difference between the schoolchildren. Conclusions: Considering the outcomes, this population presented a low occurrence of dental caries, meeting the goal of the WHO for the year 2000. On the other hand, the frequency of dental fluorosis observed indicates the need to investigate its risk factors, so that preventive measures may be planned and adapted to this city.

A43-DENTAL FLUOROSIS PREVALENCE IN SCHOOLCHILDREN FROM CITIES FLUORIDATED AND NONFLUORIDATED IN SOROCABA AREA, SP

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Fluorosis prevalence has showed increasing ratio as at fluoridated as at nonfluoridated water places. Objectives: Thus, the aim of this study was to evaluate the prevalence of dental fluorosis in schoolchildren from fluoridated and nonfluoridated cities. Methods: The sample was composed by 2,356 schoolchildren aged 7 to 12 years old from 7 randomly selected cities representing the Regional Direction of Health – Sorocaba Area (DIR XXIII). The schoolchildren were divided into two groups: those living at fluoridated cities (G1) [$n=1,385$] and those living at nonfluoridated cities (G2) [$n=971$]. Dental fluorosis was evaluated by Dean Index in agreement with the World Health Organization criteria [WHO, 1997]. Chi-square test with 5% level of significance were used to compare the results between the groups. All subjects presenting fluorosis degree 2 (very mild) or higher were deemed as presenting dental fluorosis. Results: For the group as a whole ($n=2,356$) only 14.9% ($n=351$) presented fluorosis degrees ranging from 2 to 5. Degrees 2 were the most cases found (10.5%). Comparison between groups revealed higher fluorosis prevalence in G2 (19.6%) than in G1 (11.5%) [$p<0.05$]. Conclusions: Although the highest fluorosis prevalence has been observed at nonfluoridated cities group (G2) the most part of schoolchildren showed very mild fluorosis.

A44-DENTAL FLUOROSIS PREVALENCE IN 12 YEAR-OLD SCHOOLCHILDREN LIVING IN MANAUS-AM

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Objectives: The aim of this study was to describe the fluorosis prevalence in 12 years old schoolchildren, living in Manaus-AM-Brazil, non-fluoridated area, as well as, to show the relationship of such condition with socioeconomic indexes. Methods: The sample comprised 1,212 schoolchildren from both private and public schools. The dental fluorosis index used was the Thylstrup and Fejerskov (TFI). The socioeconomic factors, family wealth, and education degree, as well as, the oral hygienic habits and the use of fluoride were surveyed by the means of questionnaires. Results: The fluorosis prevalence was 12.4%. With regard to the damage degree caused by fluorosis, 87.9% of the subjects were classified as TFI 1; 10.1% as TFI 2, and 1.3% as TFI 3. Private and public schoolchildren showed statistically significant difference between them. The TFI among the private school subjects was 24.4%, whereas in the public school was 10.8%. 16.85% of the subjects did not revealed their family wealth, however the socioeconomic factors showed a lower degree to children enrolled to the public schools. Conclusion: The fluorosis prevalence and severity degree is not regarded as a major problem in public health.

A45-MONITORING FLUORIDE INGESTION IN CHILDREN FROM INLAND PARAÍBA

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Objectives: The aim of this research was to monitor the fluoride [F] ingestion in children who are permanent residents in rural communities of inland Paraíba, which have different fluoride [F] concentrations in the water. Methods: Water samples were collected from rural areas of Catolé do Rocha (Paraíba). Fifteen children were randomly selected to take part in the study. Duplicate diet samples were collected in two occasions: July (2002) and six months later. The water samples were analyzed in a specific electrode with TISAB II, and the solid food samples were analyzed by HMDS (Whitford, 1996). Results: From 94 water samples from the selected rural areas for the study, 26% ($n=25$) had residual fluoride quota above 0.6 ppm F (mg/l), varying from 0.1 to 3.26 ppm. Fluoride ingestion in children occurred mainly due to fluid intake (80 – 90%). The ingested Fluoride doses varied from 0.006 to 0.18 mg F/Kg weight/day. Five children presented values above the limit dose (0.07 mg F/Kg weight/day) for the risk of fluorosis. There was a higher liquid intake (30 – 40%) during warmer periods, and a reduction of ingested fluoride doses due to the use of other water sources that

have lower fluoride concentration. In six months, mean fluoride concentrations (SD) (mg/l) were decreased from 1.1 (0.9) to 0.7 (0.5) ($p < 0.05$, paired T Student Test). The mean doses (SD) were 0.06 (0.04) and 0.03 (0.02) respectively ($p < 0.05$, paired T Student Test). Conclusions: The results of such monitoring proved that approximately 30.000 individuals are being exposed to higher fluoride concentrations than those recommended for that region. Support: CNPq 300 590/00-04.

A46-COMPARATIVE ANALYSIS OF DENTIFRICES FOR CHILDREN AVAILABLE IN BRAZILIAN MARKET

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Objective: The aim of this study was to compare and analyze 14 different dentifrices for children that are available in the Brazilian market in the last 24 months. Methods: The dentifrices analyzed were Gel Dental Infantil Weleda®, Angelform®; First Teeth®; Gel Dental Chocolate – Natuflora®, Colgate Baby®; Colgate 102 Dálmatas®; Colgate Júnior; Tandy®; Oral B Mickey for Kids®; Aquafresh Kids®; Digimon®, Splash Kids®, Gel Dental Equa-val Kid's®, Sítio do Pica Pau Amarelo - Natura Criança®, Crest Kid's® according to: the size of the whole of the tube, fluoride concentration, viscosity, indication of children's age, amount of toothpaste per package, and manufacturer's recommendations. Results: It was observed that the size of the whole of the tube was not standard; most of the toothpastes contained 90g, had drawings for children, and pleasant taste. Not all toothpastes showed the age for which they are recommended. Oral B Mickey for Kids® was the one with the highest viscosity. The manufacturer's recommendations were basically that adult supervision is necessary when using these products and that swallowing of the toothpastes should be avoided. The toothpastes showed a lot of differences on the analyzed aspects. Conclusion: In conclusion, there is need for better explanations by dental professionals and manufacturers on the characteristics and use of toothpastes.

A47-EFFECT OF TESTOSTERONE AND FLUORIDE ON SALIVARY FLOW RATE AND COMPOSITION

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Several hormones affect the function of salivary glands; some act through adenylyclase, which is activated by fluoride (F), while others as the gonadal hormones, act at

gene transcription level. Objectives: The purpose of this work was to study the action of F on salivary flow rate, protein concentration and amylase activity of orchidectomized (ORQ) rats, with or without testosterone T replacement. Methods: It was collected pilocarpine-stimulated saliva of ORQ rats without (C and CF groups) and with (CT and CTF groups) T replacement. One hour before the collection, the CF and CTF groups received NaF (5mg/Kg b.w., i.p.). Results: F and T did not affect the salivary flow rate, alone or together. However, salivary protein concentration increased 1.3-1.4 times in the presence of F. No effect was observed with T alone. F and T separately caused an increase of 1.3-1.4 times on amylase activity; when together, the increase was of the same size. The specific activity (U/mg of protein) of amylase was not altered by F, in the groups without T replacement, but it was 1.4 times greater in T-treated group (CT>C). Conclusions: It was concluded that neither F nor T do not alter the salivary secretion rate of ORQ rats, together or separately. Although the T replacement does not alter the total protein concentration, the increase of specific activity of amylase suggests a selective stimulation of this enzyme secretion or an inhibition of other proteins secretion. Support by FAPESP.

A48-PREVALENCE AND SEVERITY OF DENTAL FLUOROSIS IN PIRACICABA AREA, SP

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The increase in dental fluorosis prevalence at several regions all over the world has usually been observed as very mild and mild degrees. Objectives: Therefore, the aim of this study was to evaluate the prevalence and severity of dental fluorosis in schoolchildren. Methods: The sample comprised 3,091 schoolchildren aged 7 to 12 years from 7 randomly selected cities representing Regional Health Direction – Area of Piracicaba (DIR XV). The sample was divided into schoolchildren living in fluoridated cities (G1) [n=1,776] and nonfluoridated cities (G2) [n=1,315]. The examination to evaluate prevalence and severity of dental fluorosis was performed according to the Dean index following World Health Organization criteria [WHO, 1997]. The results were analyzed by chi-square test, with 5% level of significance. Subjects presenting fluorosis degree 2 or higher were regarded as presenting fluorosis. Results: From the total number of schoolchildren (n=3,091) only 12.4% (n=385) presented some degree of fluorosis especially of degree 2 (very mild) [8.8%] followed by degree 3 (mild) [2.8%]. The fluoridated group (G1) exhibited higher prevalence of dental fluorosis (14%) compared to nonfluoridated group (G2) [10.4%] [$p=0.009$]. Conclusions: Even though the highest prevalence of fluorosis was observed at the G1 and the most frequent degrees were very mild and mild which may yield only esthetic alterations.

A49-EFFECT OF CHRONIC TREATMENT WITH FLUORIDE ON THE FLOW RATE AND COMPOSITION OF SALIVA OF OVARIECTOMIZED RATS

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Objective: The salivary glands suffer influence of several hormones which may act through the activation or inactivation of adenylylase. Fluoride (F) is an activator of this enzyme and therefore then it is utilized in the treatment of osteoporosis cause by estrogens deficiency, it may lead to alterations on flow rate and composition of saliva. The purpose of this study was to evaluate the effect of chronic treatment of 10 ppm fluoride in drinking water on flow rate and protein and amylase concentration of saliva of ovariectomized (OVX) rats. Methods: Female Wistar rats were divided into four groups: 1) C group: OVX rats treated with distilled water; 2) CF group: OVX rats treated with 10 ppm F; 3) I group: intact rats treated with distilled water; 4) IF: intact rats treated with 10 ppm F. After 3 months of treatment and 12 h fasted, pilocarpine-stimulated saliva was collected. Results: OVX rats showed increased (68%) salivary flow rate when compared with intact rats. Protein concentration and amylase activity were decreased in OVX rats. These results where not altered by fluoride treatment. Conclusion: The estrogen deficiency caused by ovariectomy leads to an increase in salivary flow rate with decrease in protein concentration and amylase activity and fluoride does not alter this effect.

A50-SATISFACTION RELATED TO DENTAL APPEARANCE CONSIDERING DIFFERENT FLUOROSIS LEVELS IN BRAZILIAN ADOLESCENTS

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Fluorosis perception and its contribution for dissatisfaction related to dental appearance depend on several factors, such as cultural, social-economic and psychological factors. Objectives: Thus, this study aimed to verify the interference of different fluorosis degrees in the satisfaction related to dental appearance and the factors that contribute for this satisfaction in Brazilian adolescents. Methods: A cross-sectional study was performed in cities containing different fluoride levels in water supply and 170 Brazilian adolescents aged from 10 to 14 years have participated. For each adolescent, a color photograph was taken, calculated Dean's fluorosis index and applied a partially structured questionnaire. The χ^2 test and multiple logistic regression were used to evaluate the association among

the independent variables and adolescents dissatisfaction with dental appearance. Results: Gender and age were not associated to the perceived dissatisfaction, the largest percentage of respondents who reported dissatisfaction was found in supra-optimal fluoridated region. Dental alignment and dental color were pointed out as the most important factors that can affect the satisfaction related to dental appearance. A greater proportion of dissatisfied individuals was found in those adolescents who had fluorosis scored 3, 4 and 5. Conclusions: Dental fluorosis can constitute a risk factor of perceived esthetic problems when present in more severe degrees. The mild fluorosis is a minor esthetic problem that not affected adolescents' well being.

A51-ASSOCIATION OF 18% HYDROCHLORIC ACID TO 10% CARBAMIDE PEROXIDE FOR REMOVAL OF IRREGULARITIES AND STAINS OF FLUOROSIS

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Objective: Describe the enamel microabrasion technique, through a case report, for the removal of irregularities and brown stains caused by fluorosis, which was associated 18% hydrochloric acid and 10% carbamide peroxide. Methods: Perform, at the clinic, using a paste compound of 18% hydrochloric acid and pumice (10 applications on the dental surface with a wooden spatula, making circular movements for 10 seconds in each tooth). Right after this session, perform dental polish using discs with extra-thin granulations. After 15 days prescribe the use of 10% carbamide peroxide, on individual tray, during 4 hours at home. Results: After one session of microabrasion using 18% hydrochloric acid and pumice and the use of individual tray for bleaching during 15 days, we had improvement of esthetic, removing irregularities and bleaching teeth. Conclusion: The microabrasion technique with 18% hydrochloric acid and pumice associated with bleaching with 10% carbamide peroxide on the removal of irregularities and dark stains caused by fluorosis show up as a practical, faster and effective technique, requiring low trans-operate time, being simple to perform and inexpensive.

A52-DENTAL FLUOROSIS IN PRIMARY DENTITION ACCORDING TO COMMUNITY FLUORIDATION STATUS AND SOCIOECONOMIC FACTORS

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Objective: To determine the prevalence of dental fluorosis in primary dentition of preschool children residing in the Southeast area of São Paulo State, Brazil, according to community fluoridation status and socioeconomic factors. **Methods:** Data for this cross-sectional study were based on the data bank from the Epidemiological Survey of São Paulo State, 1998, provided by the State Health Department. A total of 3,571 preschool children aged 5 and 6 years were randomly selected in 29 towns, which were chosen at random to represent the Southeast area of São Paulo State, after stratification by fluoridation status and town size. Calibrated dentists performed clinical examinations according to the WHO criteria, using the Dean Index. The Chi square test was applied to determine the differences between prevalence of dental fluorosis and the studied variables. **Results:** The mean age of examined children was 5.6 years. The prevalence of fluorosis in primary dentition was 5.9% using the Dean Index with 5.6% of children classified as grades 1, 2 or 3 and 0.3% as grades 4 and 5. The prevalence of fluorosis was not significantly different between fluoridated and non-fluoridated areas ($p=0.58$) as well as among small, medium-sized and large cities ($p=0.80$). On the other hand, children from private schools showed significantly higher fluorosis prevalence (9.4%) than those from public schools (5.6%) ($p=0.006$) and preschool children residing in rural zone presented significantly higher prevalence (9.1%) in comparison to those residing in urban areas (5.5%) ($p=0.003$). **Conclusion:** Dental fluorosis in primary teeth was not a public health problem in the Southeast area of São Paulo State and its prevalence was related to two variables: type of school (public or private) and residential area (urban or rural).

A53-EFFECT OF FLUORIDE AND GONADAL STEROID DEFICIENCY ON ENAMEL AND DENTIN MINERALIZATION OF FEMALE RATS

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Objective: The aim of this study was to verify the influence of estrogen deficiency on enamel and dentin microhardness of female rats incisors, as well as the influence of chronic administration of fluoride on that response. **Methods:** Sham or OVX rats drank distilled water or distilled water with 10ppm fluoride as NaF, for 90 days. The upper incisors were removed and the specimens submitted to microhardness analysis of enamel and dentin. **Results:** The data were compared by variance analysis and Tukey's test ($p<0.05$). There was a significant reduction in the mineralization of crown (7.9% and 8.1%) and root (20.4% and 25.0%) in both groups treated with fluoride or distilled water, respectively and an increase (14.2%) in the mineralization of coronal dentin after ovariectomy. Fluoride treatment did not cause reduction in enamel mineralization;

however, it reduced dentin mineralization following ovariectomy. **Conclusion:** It was possible to conclude that estrogens directly or indirectly influence the process of enamel and dentin mineralization of female rats' incisors. The results also indicate that enamel and dentin exhibit different responses to fluoride administration. Support: CNPq/PIBIC.

A54-PREVALENCE OF DENTAL CARIES AND DENTAL FLUOROSIS IN PIRACICABA, SP, BRAZIL

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Objective: To determine the prevalence of dental caries and dental fluorosis in

Piracicaba, SP, Brazil, through an epidemiological survey accomplished in 2001 and to compare the results obtained with referring data collected in previous epidemiological surveys (1991, 1995 and 1997). **Methods:** After the approval by the Research Ethics Committee of FOP/UNICAMP and obtaining the required authorizations, 824 12-year-old schoolchildren were examined by two calibrated dentists, under natural light with dental mirrors using DMFT and T-F indexes. Polynomial Regression assessed DMFT variation in function of time and the Chi-square test was used to compare the percentage of children with dental fluorosis in relation to studied years ($p<0.01$). **Results:** A total of 45% of the children was caries free and 31.4% of them had dental fluorosis (T-F³¹). The mean DMFT value for the examined children was 1.7. A significant reduction of 50% in the DMFT index and a significant increase of 11% in fluorosis prevalence have been observed in 12-year-old schoolchildren since 1991 ($p<0.05$). **Conclusion:** Future researches should be made in order to monitor this relationship.

A55-FLUORIDE AVAILABILITY AND STABILITY OF BRAZILIAN DENTIFRICES DESIGNED FOR CHILDREN

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The anticariogenic effect of fluoride dentifrices depends on the presence of fluoride (F) as F⁻ or monofluorophosphate (FPO₃²⁻) in the product. The Brazilian resolution that regulates fluoride dentifrices only determines the maximum concentration of F in the product (0.15% or 1500 ppm F), with no mention to the quality or stability. **Objective:** The aim of this study was to evaluate the availability and stability of F present in Brazilian dentifrices designed for children. **Methods:** Total F, soluble F (F⁻+FPO₃²⁻) and F⁻ were

determined initially and after 18 months of storage at room temperature. The dentifrices were coded for the analyses, which were done in duplicate using an ion specific electrode. Results: Total F concentration (mean±dp, n=3) found initially/advertised by manufacturers (µg/g) were: Aquafresh Kids (957.9±42.2/1,100); Colgate Junior (1,022.3±44.1/1,100); Digimon (1,100.9±30.1/1,100); Oral B Mickey (1,072.4±35.7/1,127); Tandy (1,073.1±48.3/1,100) e Colgate Baby (486.0±14.5/500). In all products, all F was soluble, with exception of the product Digimon, which presented 35% of insoluble F initially. After 18 months, all dentifrices maintained the same soluble F concentration, with exception of Digimon, which present only 225.3±33.6 µg/g of soluble F (80% was insoluble). Conclusion: Although all dentifrices evaluated were in accordance with Brazilian rules, one of them presented problems of availability and stability of the soluble F, suggesting that the current resolution should be reviewed to guarantee to the consumer the anticariogenic effect.

A56-THE INFLUENCE OF PH VARIATION IN MOUTH RINSES WITH LOWER NaF CONCENTRATION IN TODDLERS

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Objectives: This study aimed to verify the effect of citric acid as an acidulate agent in mouth rinses with lower NaF concentration, using pH-cycling model and bovine enamel. Methods: Enamel blocks were submitted to the surface microhardness (SMH) test and randomly divided in 12 experimental groups and one placebo. The blocks were submitted to pH cycling for 7 days, with daily applications once/day of 0.02% NaF and 0.1% NaF and twice/day of 0.05% NaF solutions. Four different pH: 4.0, 5.0, 6.0 and 7.0 were used. Next, SMH was again used to determinate the percent surface microhardness change (%SMHC). Fluoride present in enamel was also analyzed. The results were homogeneous with the variance analyses and Tukey's test (5%) considering fluoride concentrations and pH. Results: The results showed that pH influenced % - SMHC in 0.02% NaF and 0.05% NaF solutions with pH 4.0, which had less mineral loss compared to pH 7.0 (p<0.05). The 0.02% NaF - pH 4.0, and 0.05% NaF - pH 7.0 groups showed similar results (p>0.05). The pH had no influence on fluoride present in enamel. Regarding F content in solutions, F concentration in enamel was higher only for 0.1% NaF solution (p<0.05). A dose-response relationship was observed among the tested solutions, with better anticariogenic effect for the 0.1% NaF solution. Conclusions: It was concluded that the addition of citric acid to acidulate mouth rinses had an effect mainly on mineral loss and less on F concentration in solutions. Support: CNPq/PIBIC for scholarship provided.

A57-EVALUATION OF THE KNOWLEDGE ABOUT FLUOROSIS OF SCHOOL CHILDREN PARENTS ENROLLED IN A PUBLIC SCHOOL IN RIO DE JANEIRO

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Objective: The aim of this study was to evaluate the knowledge degree of school children parents enrolled in a public school in São João de Meriti concerning the risks of dental fluorosis. Methods: 160 closed-response questionnaires tested parents of children aged between 6 – 13 years and results were submitted to statistical analysis. Results: It was acknowledged that all parents used toothpaste during tooth brushing and although most had low instruction levels (61.3% school and 28.1% high school), 92.5% of the parents were able to inform what fluoride is and 93.5% agreed that the ingestion of fluoride by children is dangerous to health. Statistical analysis demonstrated a direct significant relationship between parent tooth brushing frequency and that of their children, as well as the fact that parents with higher frequencies tend to offer fluoride to their children. Conclusion: Such findings suggest a necessity to inform and control the fluoride consumption levels of children, which can be also obtained by decreasing the amount of fluoride present in toothpastes produced specially for children. Health programs must take under consideration the knowledge and practices in oral healthcare as to improve oral health according to the reality of the population as well as promote information about fluorosis and the risks of exaggeration of fluoride ingestion.