

The Effect of Dental Rehabilitation on the Body Weight of Children with Early Childhood Caries

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- Purpose:** The purpose of this study was to ascertain the effect of comprehensive dental rehabilitation on the percentile weight and percentile growth velocity of children with early childhood caries (ECC).
- Methods:** The percentile weight categories of children with noncontributory medical histories and ECC were compared to caries free control patients, before and following their complete dental rehabilitation under general anesthesia.
- Results:** Prior to dental rehabilitation, test subjects' percentile weight categories were significantly less than that of the comparison group ($P < 0.001$). While 13.7% of the ECC patients weighed less than 80% of their ideal weight, thereby satisfying one of the criteria for the designation of failure to thrive, none of the control patients did so ($P < 0.05$). Following dental treatment, children with ECC exhibited significantly increased growth velocities during the follow-up period ($P < 0.001$), demonstrating the phenomenon of catch up growth. The average length of follow-up for the test and comparison groups were 1.58 years and 1.36 years, respectively. At the conclusion of the follow-up period there was no longer a statistically significant difference seen in the percentile weight categories of the test and control groups.
- Conclusion:** Following comprehensive dental rehabilitation, children with a history of early childhood caries no longer differed in percentile weight categories from control patients. The phenomenon of catchup growth was observed in these patients.

Maine's Dental and Nutrition Collaboration for Disease Prevention

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Maine has relatively few pediatric dentists, and many general practitioners often feel unable to provide services to children requiring extensive care. This presentation describes a preventive initiative focusing on reducing restorative needs that was initiated through a collaboration of the Maine Dental Association (MDA), State Oral Health Program (OHP), City of Bangor Children's Dental Clinic and the Supplemental Nutrition Program for Women, Infants and Children (WIC). Developed as a model, the program concentrated effort during February and March 2000 in celebration of National Children's Dental Health and Nutrition Months. Training was provided for WIC nutrition counselors by OPH staff, focusing on oral disease prevention for parents and children, prevention and recognition of Early Childhood Caries (ECC), and the benefits of fluoride. A short video promoting good oral health habits for parents and children was provided to all WIC programs for use during client visits. Mothers received toothbrushes for themselves and their children and baby tenders for infants. Educational literature created for WIC focused on nutrition and preventive dental care. A reminder card reinforcing the importance of fluoride in preventive dental care was given to all parents. Kits for well water testing were made available to all WIC programs, with fees waived for clients. Future collaboration with the University of New England School of Dental Hygiene will provide dental professionals with training on ECC, and how to provide preventive services for infants and toddlers in professional settings. Evaluation and institutionalization of this model will also be discussed.

Dietary Determinants of Dental Caries and Dietary Recommendations for Preschool Children

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A collaboration between HRSA, HCFA, Head Start and WIC commissioned a reevaluation of dietary determinants of dental caries and recommendations for preschool children. This review reconfirms that caries in preschool children is due to a combination of factors, including colonization of teeth with cariogenic bacteria, frequent exposure of these bacteria to substrates that can be metabolized to produce acid, and susceptible teeth. Caries risk is greatest if sugars are consumed at high frequency and are in a form that is retained in the mouth for long periods. Sucrose is the most cariogenic sugar because it can form glucan that enables firm bacterial adhesion to teeth and limits diffusion of acid and buffers in the plaque. There is emerging interest on the effects of tooth development problems and their role in the future dental caries risk of the child. Studies have shown that infants given sugars early in life favored products with higher sugar levels when they are toddlers. Early childhood caries is not solely the outcome of a child sleeping with a bottle, but to other feeding behaviors, as well as bacterial and tooth susceptibility factors. Cariogenic foods should be limited to mealtimes and rapidly cleared, either by tooth brushing or by consumption of protective foods. Also sugar containing snacks that are slowly eaten (e.g., candy, cough drops, lollipops, suckers) should be limited. Nutrition education for the caretakers of infants and toddlers therefore should be aimed at minimizing caries risk, as well as promoting proper food eating patterns.

A Program of Intervention Regarding Erosive Low pH Imported Snacks

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Objectives. Outreach projects aimed at intervention were developed subsequent to demonstration of the potential for enamel erosion to occur with excessive intake of imported acidic snack foods formulated from citric acid, salt, and spices.

Methods. Economic as well as cultural issues requiring a careful approach were addressed through development of tailored educational programs. Access to the target population was gained through formation of partnerships between elementary and secondary school health personnel, parent-teacher associations, community health clinics and researchers in two major dental teaching institutions.

Leadership structure. Health Services Supervisors in each of the targeted school districts led the way for low-intensity intervention to occur. In view of the need in some districts for bilingual communication, inclusion of bilingual personnel enhanced accessibility.

Communication Strategies included small group teaching involving the use of tailored video productions, bilingual brochures, science class demonstrations and health fairs. Both child and parentally focused productions were presented in appropriate settings. Radio television and newspaper interviews as well as other forms of coverage has been an ongoing aspect of this educational activity.

Impact. Although initially the target population was the South Texas Mexican-American population, a random sample survey of South Texas middle schools showed a sizable number of non-Mexican-American students with a similar prevalence of use of the low pH snack products where they are available. The activities of this intervention project are confined to Texas and Virginia currently but nationwide educational efforts are planned with the goal of targeting areas where market analysis reveals that the sale of these products is high.

Results. An assessment of outcomes has been seen in elimination of these imported condiments as fundraiser items at public and parochial schools in South Texas. Manufacturers of these products have been approached regarding the possibility of warning labels for inappropriate use for placement on each package.

Funding and Sustainability of efforts. Support from minority health initiatives provides initial fact-finding and educational material development. Further funding has been forthcoming through sale of the educational videos and brochures to other health-related organizations as they become aware of the potential for dental morbidity through chronic use of these products.

Conclusions and Recommendations. Identification of potential for dental erosion through chronic and inappropriate use of imported low pH snack products has gained national attention through the efforts of this investigation. Continuation of research into educational approaches and/or product modification is suggested.

Controversies and Issues in Child Nutrition and Oral Health: Five Dental Nutrition Professionals' Perspectives.

CC Mobley, Moderator.

A panel of nationally recognized Dental Nutrition Professionals will discuss child nutrition and oral health, related controversies and issues, and the dynamics in a child's nutritional, general health and oral health status. Mary Faine (University of Washington School of Dentistry in Seattle) will discuss the childhood obesity epidemic and the oral health implications. Teresa Marshall (University of Iowa, College of Dentistry) will present preliminary data on growth, diet, and oral health in Iowan children 6 months to 1 year of age. Riva Touger-Decker (University of Medicine and Dentistry of New Jersey) will present results of a oral status and nutrition study of multicultural, inner city, daycare center children. Carol Palmer (Tufts University School of Dental Medicine) will review the importance of integrating age-specific nutrition recommendations with oral health recommendations. Connie Mobley (University of Texas HSC School of Dentistry at San Antonio) will review oral health status and dietary intake results of WIC participants in an urban and rural Hispanic population and present pilot data relating body mass index (BMI) and caries status in Hispanic fourth graders. The synergies between food choices, oral health, and general health remain a mystery. Interactions between compromised nutritional status, over nutrition in children, and oral health status requires investigation. A strategic research plan seeking answers to questions that explore the association between oral health and nutritional disorders like anemia, failure to thrive, and childhood obesity is needed.