



FLUORIDE VARNISH WITH ACP

The First Responder in the Energy Drink Craze!

In a recent publication entitled “*An Update on the Dangers of Soda Pop*”, Kaplowitz provides a closer look at the destructive nature that many soft drinks produce on enamel tooth structure. He points out that “with the increase in soda pop consumption, it leads people to drink less milk”... resulting in a higher incidence of demineralization and possibly caries.¹ Although soda consumption crosses all age groups, the greatest consumption is reported among adolescents. The dental community has recognized the seriousness of soda on the oral health of children, yet the battle continues between those who have eliminated vending machines and those who continue to accept the rewards of those companies who continue to sell these drinks in American schools. In addition to this sustaining trend, the amount distributed in soda packaging has increased from 6.5 oz. in the 1950’s to as much as 20 oz. sizes in the 1990’s. The oral health provider should now recognize that factors influencing enamel demineralization and erosion in soda are a direct result of sugar content, lowered pH, frequency of intake and amounts during intake. All of these factors should be considered when formulating a successful patient education model.

In a country that has embraced a living style of prevention, it is not surprising that the trends in soft drink consumption have shifted from soda to “*sport*” and “*energy*” drinks. For those who begin or end their day with exercise and health-awareness to maintain their youthful and fit look, the attraction towards fluids that profess to increase energy or health-association through sports is the latest trend. ***But, are we really healthier if we buy into the claims made on these new soft drink trends? Have you considered the higher amounts of sucrose and caffeine that are responsible for producing a higher degree of energy?*** Caffeine is considered a supplement in these “high energy” drinks which does not mandate its listing as a primary ingredient. Yet, the caffeine mg. content in this grouping far exceeds those in the soda categories. Meanwhile, the combination of the caffeine and sugar in these fluids are consumed at a faster and more frequent rate than other drinks.



Enamel Demineralization



Severe Enamel Erosion



According to a position paper published by the American Academy of Pediatrics,² there has been an ever-increasing danger in the high amounts of soda consumption in children and teenagers. The academic group under Dr. Bennett Amaechi at UT Health Science Center discovered that there is a 30 percent prevalence rate of dental erosion among 10-14-year olds in the United States.⁹ With the high acidic content of these products and lower pH values when compared to soda, the oral health concerns are dangerous.

As we implement new survey tools available through the ADA website which assess the “caries risk levels” of our patients, we recognize that the question related to the frequency of carbonated and non-carbonated soft drinks now includes “energy drinks.”³



TABLE 1: Approximate pH levels.

SOFT DRINKS	pH	ENERGY DRINKS	pH
Water	7.0	Sugar-free Regular Red Bull	3.3
Milk	6.8	Regular Red Bull	3.2
Beer, Wine	4.0	Coca Cola’s Full Throttle	2.9
Orange Juice	3.6	Pepsi’s Amp Energy Supplement	2.7
Apple Juice	3.4	Power Aid	2.6
Diet Coke	3.0	Gatorade	2.5
Sprite/ Fanta	2.7	Isostar	2.38
Sweetened Lemonade	2.56		
Coke, Pepsi	2.3		

The pH levels listed are based on the median range for each product category

According to Table 1, it becomes evident that many of the latest additions to the energy and sport drink groups are significantly higher in acidity than those traditional soft drinks popular among youth. These popular drinks contain pH levels as low as **2.38** and are offered in greater quantity sizes for purchase. The additional danger is the inclusion of caffeine supplements that are known to dehydrate the oral cavity and reduce the buffering capability of saliva in protecting the teeth.

If young adults participate in drinking these products at least three times a day, the liquids come in contact with the teeth for a longer duration than solid sweet snacks. Bathing the teeth, whereby saliva is now at a dangerous level for demineralization, becomes critical in the presence of bacterial plaque. Even if dental sealants are present, they become less effective in preventing tooth erosion during continual contact by these dangerous products.⁴ Therefore, the dental professional becomes a key influencer in altering their consumption habits through education and new recommendations in therapies. The physical characteristics may reveal enamel eroded below the level of a present restoration or sealant. Shiny surfaces on lingual/palatal surfaces where these liquids come in greatest contact revealing erosion of normal anatomical structures and exposure of darker dentin through the enamel.⁹ The dental professional should be able to recognize these clinical signs and review several important tips in their educational presentation. Professional recommendations should include: decreasing the frequency of intake, rinsing the mouth with neutral water following consumption of soda, sports or energy drinks, and recommending the use of fluoridated toothpaste at an alternate time from their exposure to these products.

The emerging technologies which contain calcium and phosphate salts have become the standard of care during a routine dental visit. Once a patient’s caries risk level is identified and all other dietary factors are considered to be a greater risk, the clinician can create a treatment option that heightens the protective factor against erosion, sensitivity and dental caries. **Enamel Pro**[®] prophylaxis paste and **Enamel Pro**[®] **5% Sodium Fluoride Varnish** formulated to deliver (ACP) amorphous calcium phosphate and sodium fluoride are currently available and independent test data reveal a greater *fluoride uptake* and depositing lost minerals to restore the enamel and dentin integrity.^{5,6} With available patient unit doses, the application is easy at the final phase of a prophylaxis

appointment or at more frequent intervals as indicated by the patient’s level of risk. Furthermore, the presence of loosely-bound fluoride ions protected within calcium fluoride globules serve to sustain the fluoride activity much longer beyond the treatment date.¹⁰

When an adolescent or young adult reports the daily consumption of soda or energy/sport drinks that exceeds a healthy turnaround time for the natural buffering of saliva, it becomes the responsibility of a dental professional to recommend the application of the NaF varnish with ACP to supersaturate fluoride and mineral activity where it serves for further protection. The dentist or dental hygienist simply applies the fluoride varnish on the dried and isolated teeth and concludes the procedure with post-treatment instructions to avoid brushing and flossing for remainder of that day. Fluoride varnish has been shown to reduce the softening of enamel under the acid attacks of soda and trend drinks.⁷ At home, the patient can follow up to sustain the fluoride and remineralization benefits using products such as *MI Paste Plus* containing Recaldent™, chewing gum or mints containing xylitol used 4-5 times a day and daily dentifrices with 1.1% sodium fluoride. The added benefit of using xylitol products is their ability to buffer the saliva, starve cariogenic bacterial and reduce the acidic by-products normally associated caries progression. Taking these steps with the highest risk patients who currently consume the associated soft and energy drinks at high frequency is a great stride in prevention.⁸

As long as the global market strives to meet “convenience”, the drive for these soft drinks will continue to rise. They are inexpensive, easy to carry and accessible in vending machines. Billions of dollars are spent on advertising and they still remain the most popular food items in the daily diet.



Fluoride Varnish Application: 3-5 minutes

- Isolate teeth with cotton rolls or mouth retractor
- Stir varnish in unit application cup
- Apply a thin layer of varnish on all surfaces in young patients
- Wipe brush with gauze square in between re-application procedure

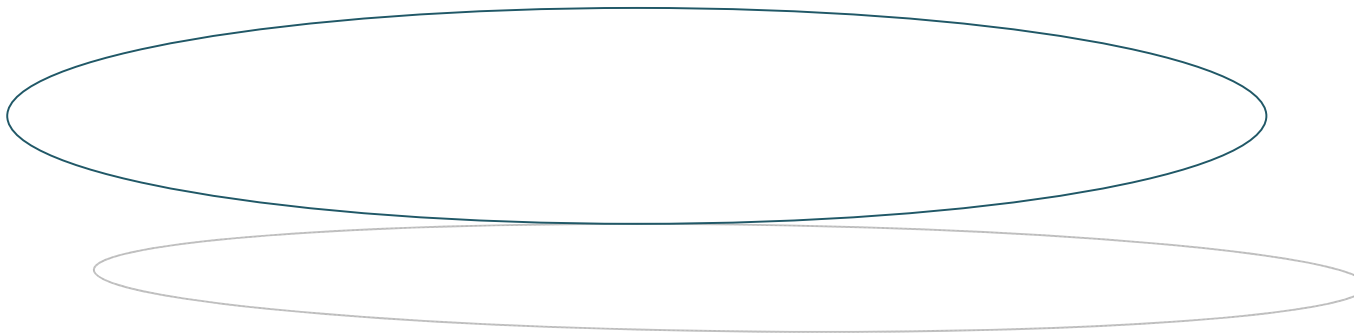
Benefits:

- Dries immediately
- Minimal ingestion with no toxicity
- 22,600 ppm sodium fluoride ions available
- Incorporates firmly-bound and loosely-bound fluoride ions to strengthen the teeth
- Clear – esthetic color

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