



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Rachel E. Miller</b>	<b>Project Number</b> <b>J1426</b>
<b>Project Title</b> <b>Don't Give Fluoride the Brush-off: The Effect of Tooth Brushing on the Development of Decay in Baby Teeth</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To determine if brushing the teeth of babies and children under two with water, or not brushing them at all, is less effective than, or as effective as, brushing with fluoridated toothpaste in preventing dental caries.</p> <p><b>Methods/Materials</b> 18 extracted baby teeth from the same mouth were placed in nine different air-tight, screw-lid glass containers each containing human saliva and either milk, apple juice or non-fluoridated water. The teeth were cleansed in different ways: six were brushed daily with fluoridated toothpaste, six were brushed daily with water and six were never brushed. Every two days the teeth were observed.</p> <p><b>Results</b> After 15 days of experimentation, when compared to teeth immersed in the same liquid, the teeth brushed daily with fluoridated toothpaste were in the best condition. The teeth brushed with water significantly deteriorated from their original condition. The teeth never cleansed in any way showed the worst signs of decay and exhibited extreme changes from their original form.</p> <p><b>Conclusions/Discussion</b> Because, among teeth immersed for 15 days in the same liquid, those brushed with fluoridated toothpaste were in the best condition at the end of the experiment, it is essential to brush a young child's teeth with fluoridated toothpaste at least once a day to prevent the development of dental caries. Therefore, the recommendation of the American Dental Association that fluoridated paste not be used on young children's teeth should be changed. Also, because exposure to apple juice resulted in extreme decay even in those teeth brushed with fluoridated paste, parents should limit the drinking of apple juice by their young children.</p>	
<b>Summary Statement</b> This project is about the effect of tooth brushing (with either water or fluoridated toothpaste) on the development of tooth decay in baby teeth exposed to milk, apple juice or non-fluoridated water.	
<b>Help Received</b> Science teacher helped find the mass of teeth using electronic balance; photographer took photos of teeth after experiment was completed using micro lens.	