

CALIFORNIA STATE SCIENCE FAIR 2002 PROJECT SUMMARY

Nama(s)	Project Number
Lauren A. Baize	
Project Title	
Con Vou "Cotab" A Country? A Study of the Effect of SA year H and	
Can You "Catch" A Cavity? A Study of the Effect of Saliva pH and	
Oral Strep mutans Levels on Development of Cavities	
	>
Abstract (Coole	
Dijectives/Goals	the attack and and and
This experiment shows now the ingestion of Coke, a suffogate sugar solution, a	he cust and oral
supproceeds mutans levels. Sugar is digested by Supprintians when memory release of acid. If acid released causes and pH to drop below the #drifteel H#	a for extendey
periods a cavity may form	01-9.5 TOT Extendex
Methods/Materials	7
Measure baseline Strep mutans and pH levels of 10 subjects before be upgestic	n of Coke, as a control
Then measure pH levels with pH strips immediately after the ingestion of Coke	and every 10 minutes fx
50 minutes. Measure Strep mutans levels with Dentocult# Strep mutans str	rips 5 minutes after the
ingestion of Coke and every 10 minutes for 45 minutes; then incubate Step mu	tans vials for 48 hours.
Results	
The subjects# average saliva pH level was 7.0 before registion of Cove, fell to	4.2 immediately aftex
ingestion of Coke, rose above the critical pH within 21 minutes, and returned to	o its normal level within 50
minutes. However, the average Strep mutans level did not change after ingestic	on of Coke, contrary to the
hypothesis. People whose saliva pH dropped to 40 immediately after ingestion of Coke had, on average,	
a higher Strep mutans level than people whose saliva pH only gropped to 5.0 at	ter ingestion of Coke.x
This experiment also showed that subjects# Swep mutans levels did not correlat	te with the number of
Conclusions/Discussion	
The decrease in saliva nH is due to Stren numes digesting sugar and then relea	sing lactic acid as ax
hyproduct My experiment shows to relationship between sugar ingested and Strep mutans levels. Alsx	
because all subjects started with a salive photo 7.0. The fact that people with a higher Strep mutans level	
had a lower average saliva pH level after ingestion of Coke proves that the deci	rease in pH was not merely
due to the slight acidity of Coke. It also proves that increased bacteria in the m	outh causes more sugar to
be digested, as shown by these subjects# If we pH levels. Lastly, there was no	correlation between Strep
mutans levels and number of cavities because, although a high Strep mutans levels	vel increases one#s
vulnerability to cavities, taking preventive measures can reduce one#s risk. Int	erestingly, all thrx
subjects with sealants had no cavities, even though they had high levels of Strep	p mutans in their mouths,
showing the effectiveness of sealants.	
Summary Statement	
My project shows between a form of Colta to support sugar solution offset	a and all and Stran mutana
loyals and this increases vulnerability to covition	s oral pri and Surep mutans
levels and the increases vulnerability to cavilies.	
Help Received	
My parents helped buy materials, order Dentocult# SM Strep mutans strips from	n Finland, and design my
display board.	