



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
PUBLIC HEALTH SERVICE  
CENTER FOR DISEASE CONTROL  
ATLANTA, GEORGIA 30333  
TELEPHONE: (404) 633-3311

Refer: FL-98  
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CARIES-FREE TEENAGERS INCREASE WITH FLUORIDATION

The reductions in DMF (decayed, missing, filled) teeth in children is well publicized. Less publicized are the continuing benefits. Various studies in fluoridated communities over the last thirty years have shown a dramatic increase in the number of teenagers completely caries-free. These studies have demonstrated that teenagers have realized benefits from adjusted fluoridation even before life-time exposure and that the benefits increase with life-time exposure. Studies have also shown the differences which can be expected at varying levels of natural fluoridation.

The classic study in Brantford-Sarnia-Stratford, Canada, demonstrated no significant difference in the caries-free teenagers in Stratford (naturally fluoridated) and Brantford (fluoridated by adjustment), but a substantial difference between both communities and fluoride-deficient Sarnia.

Conservative estimates indicate that 20 percent of the teenagers in a fluoridated community will be caries-free. This is about six times as many as are caries-free in a fluoride-deficient community. Excerpts of caries-free facts from a few studies are attached.

Dental Disease Prevention Activity  
Bureau of State Services

Caries-Free Teenagers

PENNSYLVANIA:           Percentage of Philadelphia School  
Children with No Caries Experience  
(Fluoridated 9/54)

<u>Years</u>	<u>Age</u>	
	<u>13</u>	<u>14</u>
1957-58	4.2	3.6
1967-68	34.0	22.0
1968-69	33.0	20.0
1969-70	40.0	21.0
1970-71	23.0	24.0
1971-72	22.0	23.0
1972-73	22.0	21.0
1973-74	23.0	24.0

Data prepared by Division of Dental Health, Philadelphia Department of Health, from information in Report of Services, Philadelphia Board of Public Education.

WISCONSIN: In 1965 there were eight times as many thirteen year-old children (in Milwaukee, Wisconsin) free of dental decay as in 1950. (2.6 percent in 1950, 20.8 percent in 1965. Milwaukee fluoridated in 1953.)

Percentage of Children Caries-Free  
(in Milwaukee - Fluoridated in 1953)

<u>Age</u>	<u>1950</u>	<u>1959</u>	<u>1965</u>
13	2.6	4.7	20.8
14	1.5	1.4	14.7

Results of the City of Milwaukee Dental Surveys - 1950; 1959; 1965. William E. Schultz, D.D.S., M.P.H., The Journal of the Wisconsin Dental Society: 45, #5, 195-198, May 1969.

"Milwaukee: Results of Twelve Years of Fluoridation," Fluoridation News, Vol. 6, No. 3, Wisconsin Division of Health, Fall 1969.

CONNECTICUT: New Haven was fluoridated in 1967. After seven years of fluoridation, the following increases in teenagers who were caries-free were noted:

Students with Caries-Free Teeth

<u>Age</u>	<u>Number of Students</u>		<u>Number Caries-Free</u>		<u>Percent Caries-Free</u>		<u>Percent Difference</u>
	<u>1974</u>	<u>1967</u>	<u>1974</u>	<u>1967</u>	<u>1974</u>	<u>1967</u>	
11-13	553	519	52	14	9.4	2.7	6.7
14-16	539	502	30	7	5.6	1.4	4.2

Number and Percentage of Caries-Free Permanent Teeth  
March 1974

<u>Age</u>	<u>Number of Students</u>	<u>Erupted Perm. Teeth</u>	<u>Caries-Free</u>	
			<u>No.</u>	<u>%</u>
13	222	5,925	4,963	83.8
14	37	1,023	857	83.8
15	273	7,621	5,816	76.3
16	229	6,439	4,830	75.0

"Dental Health Survey of New Haven School Children After Seven Years of Fluoridation," Lillian Konick, M.P.H., Connecticut Health Bulletin, Spring 1977.

ALABAMA: Fayette, Alabama was fluoridated in 1957. After eleven years of fluoridation the following increases in teenagers whose permanent teeth were caries-free were noted, although they had not had the full benefit of fluoridation:

<u>Age</u>	<u>Increase</u>
13	9.7%
14	6.5%

"Results of Eleven Years of Fluoridation in Fayette, Alabama," Everette W. Moncrief, Jr., D.M.D., M.P.H., The Journal of the Alabama Dental Association, Vol. 54, January 1970.

GEORGIA:

White Children in Communities  
Naturally Fluoridated at Various Levels  
Percent Children Caries-Free

<u>Age</u>	<u>Macon</u> 0.11F	<u>Savannah</u> 0.3-0.5F (0.38)	<u>Moultrie</u> 0.75F
13	5.1	9.6	27.7
14	3.1	5.5	21.2
15	1.8	6.0	16.7

"Effect of Natural Fluorides on Caries Incidence in Three Georgia Cities," Fred D. Lewis, Jr., and Ernest C. Leatherwood, Jr., D.M.D., Public Health Reports, Vol. 74, #2, February 1959.

ILLINOIS:

Percentage of Caries-Free Permanent Teeth  
in Children in Evanston (Ill.)  
Before and After Exposure to Adjusted Fluoridated Water

<u>Age</u>	<u>Percent Caries-Free</u>	
	<u>No Fluoride Exposure</u>	<u>Lifetime Fluoride Exposure</u>
13	60.90	81.99
14	56.67	77.99

"Fluorine and Dental Caries," J.R. Blayney, D.D.S., M.S., and Iden N. Hill, D.D.S., J.A.D.A. 74:250-1, January 1967.

NAVAL RECRUITS: Caries-free Navy recruits at Great Lakes had averaged 2-3 per 1,000 from 1960-1968. In 1972 they almost reached the 1% level at 9.5 caries-free men (18-19 years old) per 1,000 recruits. Recruits from 35 fluoridated and 43 non-fluoridated communities were compared. In 1960 and 1961 less than 20% of the total caries-free group came from these 78 cities as compared with over 40% by 1970-72. The fluoridated cities seemed to account for virtually the entire increase. Caries-free recruits from the non-fluoridated cities had barely changed in this (ten-year) period, averaging less than 4% of all caries-free recruits.

"Dental Health of Naval Personnel," Captain Harris J. Keene, D.C., U.S.N., Military Medicine, Vol. 139, No. 11, November 1974.

CANADA:

Percent of Children with  
Permanent Teeth Caries-Free  
(Toronto, Canada - Fluoridated 9/1963)

<u>Age</u>	<u>Sample Size</u>	<u>1964</u>	<u>1969</u>	<u>1974</u>	<u>1975</u>
13	838	6.0	5.2	19.7	17.2
15	945	2.5	3.5	10.0	9.3
17	474	1.2	1.0	9.0	13.9

"An Evaluation of the Dental Effects  
of Water Fluoridation, City of Toronto  
1963-1975," D.W. Lewis, D.D.S., D.D.P.H.,  
MSc.D., Report published by the  
Corporation of the City of Toronto,  
Department of Public Health, June 1976.

Percentage of 16 and 17 year-old Sarnia (fluoride deficient), Brantford (adjusted), and Stratford (naturally fluoridated) children with caries-free permanent teeth in 1963. (17½ years after Brantford implemented adjusted fluoridation):

Sarnia	-	0.14%
Brantford	-	11.8%
Stratford	-	12.78%

"The difference between Sarnia and Brantford is highly significant and is in favor of the Brantford children. There is no statistically significant difference between Brantford and Stratford. In Sarnia only about one child in 250 in the age group examined had caries-free permanent teeth, whereas in Brantford and Stratford approximately 12 children per 100 had caries-free permanent teeth."

"Brantford-Sarnia-Stratford Fluoridation  
Caries Study: Final Survey 1963,"  
H.K. Brown, D.D.S., D.D.P.H., and Myron  
Poploe, B.Sc., M.Sc., D.D.S., Journal  
Canadian Dental Association 31:507, 1965.