



## **Fluoride: Systemic and Topical Benefits**

Some people have questioned the need for systemic fluoride (swallowing fluoride) and say that topical fluoride, such as that found in toothpaste is adequate. The following excerpts establish the continuing benefits of systemic fluoride.

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### **Centers for Disease Control & Prevention (2001)**

"Because frequent exposure to small amounts of fluoride each day will best reduce the risk for dental caries in all age groups, the work group recommends that all persons drink water with an optimal fluoride concentration and brush their teeth twice daily with fluoride toothpaste."

### **Institute of Medicine (1997)**

"In regions where only 19% of the population is served with fluoridated water [Oregon 20%], the difference in caries scores between fluoridated and nonfluoridated areas was 61%. In regions where 74% of the population is served with fluoridated water, the difference was only 6%. These findings suggested an important role for the halo or diffusion effect [nonfluoridated communities benefit from the products produced in nearby fluoridated communities, effectively reducing the disparity]."  
<http://books.nap.edu/books/0309063507/html/297.html>

### **National Academy of Sciences (2002)**

"Research provides conclusive evidence that fluoridation of the water supply or supplemental fluoride reduces dental caries, and of all dietary components exhibiting a protective effect against caries, the most effective is fluoride. Fluoridated drinking water increases resistance to dental caries at all ages. The earlier that children are exposed to fluoridated drinking water or dietary fluoride supplements the greater the reduction in dental caries in both the primary and permanent teeth."  
[http://books.nap.edu/openbook.php?record\\_id=10379&page=19](http://books.nap.edu/openbook.php?record_id=10379&page=19)

### **Study by Thylstrup (1990)**

This study reviewed evidence of the effects of the introduction of fluoridated water into a community. There were about 63 % more 8-year-olds with a caries-free primary dentition after seven years of fluoridation compared with baseline. Permanent teeth emerging into a disease-free environment (primary teeth without decay) were less likely to decay. (Thylstrup, A. Clinical evidence of the role of pre-eruptive fluoride in caries prevention. Department of Cariology and Endodontics, Royal Dental College, Copenhagen, Denmark; Journal of Dental Research 69/Spec Iss: 742-750, February, 1990)

### **Study by Singh, Spencer, and Armfield (2003)**

This study showed an important pre-eruptive caries-preventive effect. Exposure to fluoridated water topically alone did not suffice in restricting caries to low levels, whereas a pre-eruption exposure alone resulted in lower overall decay rates. The maximum caries-preventive effects of fluoridated water were achieved by high pre- and post-eruption exposure. These results supported water fluoridation as a public health measure in view of the need for continuous exposure for the maximum benefit. (Singh, K. A., BDS, GDS, PhD; Spencer, J., MSc, MPH, PhD; Armfield, J. M., BA, J Public Health Dent 2003; 63(1):11-19)

**Study by Groeneveld, Van Eck, and Dirks (1990)**

Eight out of ten cavities occur in the grooves, or pits and fissures, of the chewing surfaces of the teeth. The greatest reduction in pit and fissure cavities occurs when fluoridated water is received continually, both before and after the teeth emerge into the mouth. A study by Groeneveld, Van Eck, and Dirks found that about 66 % of the greatest reduction in pit and fissure caries came from pre-eruptive fluoride..provided that the fluoride was also consumed post-eruptively for a considerable period of time. (Groeneveld, A., Van Eck, A.A., and Dirks, O.B., Fluoride in caries prevention: is the effect pre- or post-eruptive? J Dent Res 69, Spec Iss: 751-755, February, 1990.