INTRODUCTION:

The dental benefits resulting from continued exposure of children and adults to optimal levels of water-borne fluoride have been documented for almost half a century. Literally thousands of studies on fluorides and fluoridation have been completed in the last 50 years. More than 3,700 studies have been done on fluorides since 1970 alone. A number of comprehensive reviews of fluoridation have been published recently by respected scientists and several summary reports on water fluoridation also have been published by various state, national, and international organizations. Hundreds of other papers have reviewed the effectiveness of community water fluoridation in various cities and countries. Suffice it to say, the prevailing scientific literature provides adequate documentation of the universal benefits of community water fluoridation both to children and adults, regardless of whether the studies address deciduous, mixed, or permanent dentition.

SAFETY OF COMMUNITY WATER FLUORIDATION:

While safety has often been an issue frequently raised by those opposed to fluoridation as a reason to reject it as a public health measure, scientific data from peer-reviewed clinical research provide overwhelming and incontrovertible evidence that the adjustment of fluoride levels in drinking water to that level which is considered optimal is eminently safe. Hundreds of studies on fluoride metabolism have tracked the fate of ingested fluoride. Ingested fluoride essentially travels three ultimate metabolic pathways, it is either excreted by the kidneys or it is absorbed by the teeth and the skeleton. It might be helpful to briefly discuss these three metabolic pathways as they relate to frequently-made allegations by those opposed to fluoridation.
At optimal levels (0.7 to 1.2 parts per million), fluoride has never been demonstrated to cause skeletal fluorosis or osteosclerosis. Moreover, there is mounting evidence that continued exposure of individuals to low levels of fluoride, as in optimally fluoridated drinking water, results in a decrease in osteoporosis and a decrease in concurrent susceptibility to vertebral fracture. Furthermore, there is no evidence of increased morbidity or mortality from any renal disorder for those with lifetime exposures to optimally fluoridated drinking water. In addition, several epidemiological studies examining long-term ingestion of water with high fluoride levels (8.0 parts per million or 8 times the level of fluoride in fluoridated drinking water) failed to demonstrate the induction of any form of kidney dysfunction and failed to exacerbate pre-existing kidney conditions.

Those opposed to water fluoridation also routinely claim that exposure to fluoridated water increases an individual’s risk of suffering from several forms of cancer. Again, the overwhelming weight of scientific evidence indicates otherwise. Over 50 peer-reviewed epidemiological studies have evaluated the potential relationship of water fluoridation and cancer morbidity and/or cancer mortality. None found any credible evidence that exposure to water fluoridation is in any way related to an increased risk of cancer in humans. A number of national and international scientific commissions, after reviewing all of the available scientific literature, also concluded that water fluoridation was safe and that it in no way related to increased risk to humans of any form of cancer. Finally, a 1990 study of fluoridated and fluoride-deficient communities by the U.S. National Cancer Institute revealed no link between exposure of any populations to fluoridation and the incidence of many different types of cancer occurring in a 14-year period.

Mottled enamel or dental fluorosis has been claimed to be an unintended indication of the "toxic effects of fluoridation" by those opposed to fluoridation. Technically, dental fluorosis is a developmental defect of enamel that occurs when an excessive amount of fluoride is ingested concurrently with that stage of tooth development when enamel is being formed. The severity of the fluorosis is directly related to the age of the child at exposure, the type of exposure (systemic pre-eruptive, systemic post-eruptive, or topical), the level of exposure, and the duration of exposure. While only the mildest form of dental fluorosis occurs with exposure to optimally fluoridated water, the occurrence of more prominent forms of mild fluorosis are now thought to result not from the ingestion of properly fluoridated water, but from careless prescriptive practices and inappropriate ingestion of large amounts of fluoride-containing toothpaste by young children not properly supervised during tooth-brushing.
The mildest forms of fluorosis are esthetically undetectable to the untrained eye and are of no clinical significance other than their enhanced resistance to dental caries. The mild form of fluorosis is no more a pathological condition than is having blonde hair or blue eyes. Moderate and severe forms of fluorosis are related only to exposure to excessive levels of fluoride, levels that far exceed exposure to optimally fluoridated drinking water. These levels usually do not occur in the U.S., but in other countries as a result of industrial pollution or ingestion of drinking water with extremely high amounts of naturally-occurring fluoride. Furthermore, the presence of dental fluorosis at any esthetic level in no way is related to any other adverse conditions in humans, nor is it a precursor to any disease or dysfunction.

The simple fact remains that there has never been a single legitimate laboratory, clinical, or epidemiological study that showed that drinking water with fluoride levels at optimal levels caused cancer, heart disease, or any of the other multitude of diseases proclaimed by a very small group of antifluoridationists to be caused by fluoridation. We have the collective experience of generation after generation of Americans living their entire lives in parts of the U.S. where the natural fluoride content of their community water supplies is 800 to 1300 percent higher than the level to which communities adjust their fluoride levels. Residents of these communities do not suffer any of the maladies claimed by the antifluoridation groups. Furthermore, we have 54 years experience with the adjustment of fluoride levels through fluoridation. Again, the citizens of these fluoridated communities do not suffer higher rates of any diseases. Consumer Reports summarized the situation quite well when it stated: "The simple truth is that there’s no 'scientific controversy' over the safety of fluoridation. The practice is safe, economical, and beneficial. The survival of this fake controversy represents, in Consumers' Union’s opinion, one of the major triumphs of quackery over science in our generation."

BIBLIOGRAPHY:


