

Fluoride in water

You may have heard of fluoride in water (water fluoridation, fluoridation of water); it is something to do with preventing tooth decay and now and then stirs up media controversy.

This brief explains what it is and by the end you should have enough information to explain it to others, understand the media reporting and be able to make your own mind up about the issue

Dental Decay

The Cause

Bacteria collect on the teeth and feed on sugars which weaken the enamel, the hard surface of teeth. Once a hole forms in the enamel, it becomes a cavity that can injure or kill the tooth.

The Treatment

Decay is cleaned out and the hole filled. A badly decayed tooth may need to be extracted. More complicated treatments that can restore function: crowns, fillings, root canal therapy.

Prevention

Clean away bacteria (brushing), remove the sugars (healthy diet) or toughen the enamel.

Prevention

Toothbrushing

Twice each day, good technique, fluoride toothpaste

Diet

Healthy, low sugar diet, fresh fruit & vegetables, intensive chewing

Topical fluoride

Applied by a dental practitioner regularly

Fluoride in water



How much dental decay is there? Compared to years ago, dental decay is less common.

Why? Healthy children with access to good diets, home mouth care and expert prevention have very little dental decay. Another reason for less decay is that some areas of the UK drinking water that has the proper amount of fluoride to protect teeth.

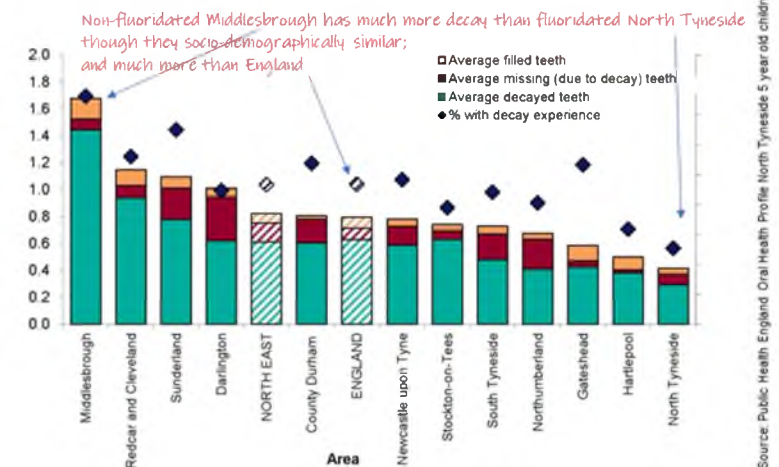
But... People who are underprivileged and who have poor access to prevention and services have the most decay.

The scars of dental decay last into adulthood and old age so it's not just a disease of children.

Prevention is better than treatment. Prevention is far less costly and it avoids the pain that can come from a decayed tooth.

Therefore prevention in high areas of decay makes sense.

Prevalence of experience of dental decay and mean number of teeth with experience of dental decay in 5-year-olds in North Tyneside, other local authorities in the North East and England.



Tooth decay Prevention rather than treatment

Fluoride dissolves in water and has no taste. More dissolved fluoride equals higher concentration.

Only 10% of the UK population (2020) has adequately-fluoridated water. Some water has enough natural fluoride to prevent decay and can be described as fluoridated; in other cases, the water suppliers add more fluoride. Drinking water extracted from wells dug into rocks with fluoride in them will contain some fluoride dissolved in it.

Fluoride in water

Fluoride can be added to water

For healthy teeth, only a minute amount of fluoride is needed in drinking water.

How it gets there - the water treatment plant

Most drinking water is filtered, purified then treated to remove solids and prevent bacteria. Fluoride may be added to help prevent tooth decay. Fluoride in water is the same whether it occurs naturally or is added deliberately.

Worldwide - who gets fluoridated water?

Water fluoridation, one of the top 10 public health achievements of the 20th Century (USA Centre for Disease Control)

Coverage is now in excess of 400 million people worldwide

Water fluoridation: One of the most researched, preventative measures we take with safety a top priority.

Choosing what to do: the ethics

Autonomy. Respect and promote individuals' choices for themselves in achieving what they believe to be in their best interests.
This can be overridden to bring the most benefit to everyone.

Beneficence. Always to act in other peoples best interests.

Non-maleficence. The duty to do no harm.

Distributive justice. All people are equal.

Fluoridating drinking water passes all these tests.



Fluoride reduces the ability of mouth bacteria to form acid. It alters the structure of the developing enamel of young children so that it is resistant to dissolving with acid.
Low levels of fluoride increase the ability of a tooth to repair the enamel (remineralisation)

Fluoridating water

1. Doesn't rely on individual behaviour
2. Benefits everyone
3. Does no harm
4. Reduces inequalities



Water Fluoridation Questions & Facts

FACT: When fluoride in water was first discovered, dental caries was so common that it HALVED dental decay.

FACT: Fluoride in water is so popular most people think it has been in all drinking water for many years.

Dental decay is less common today, so the benefits are less noticeable, unless looking closely; dentists can still see how much it works.

Is it popular? Yes

Because it is obligatory (it is unavoidable), we regularly check it is popular.

Top quality research methods indicate most people approve of water fluoridation; the small number of people who don't like it has remained constant over the years.

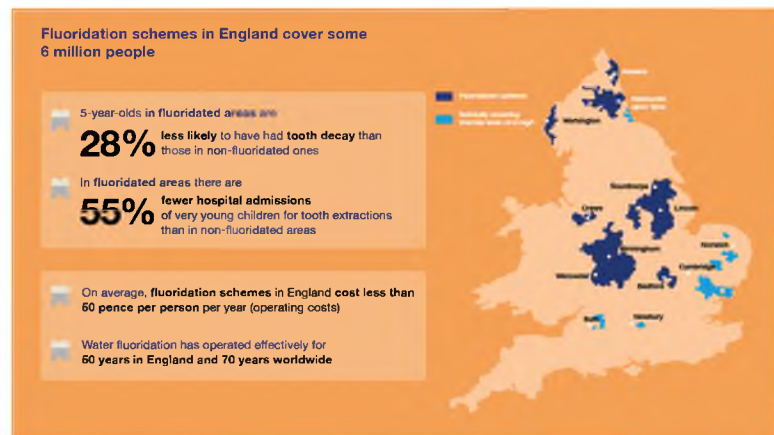
Political opinion

All shades of political opinion have a view of fluoridation:

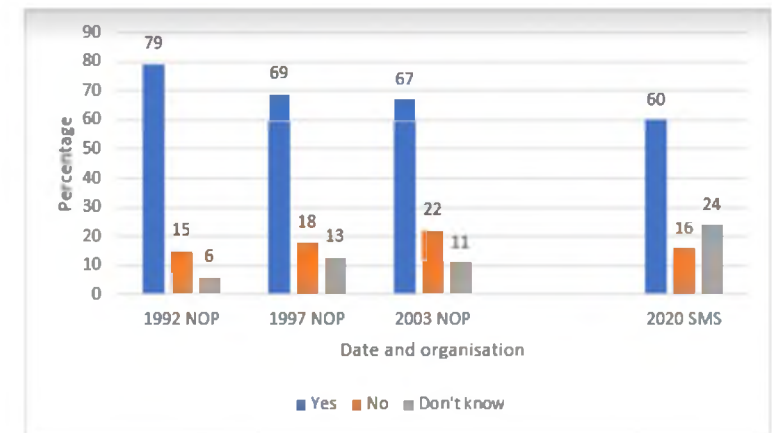
The left approves because it is egalitarian and benefits the most deprived preferentially; but can be against it because it treats the results of poverty, but not the causes (political). It is also paternalistic.

The right can be against it because it overrides personal choice (The Nanny State); but for it as it reduces dental bills.

The legalities of adding fluoride



Repondants asked if fluoride should be added to their water supply



NOP and SMS: Organisations carrying out the research
Research commissioned by BFS

Fluoridating the whole water supply doesn't rely on individual action (eg using fluoridated toothpaste or for a dental application of fluoride to individual teeth).

The comprehensive nature of the intervention and its overriding of personal, individual civil liberties is, like similar interventions (eg compulsory seat belt wearing), subject to the democratic process. Most fair-minded people accept this.

The democratic oversight of water fluoridation and the legal framework covers:

- The decision to fluoridate
- The monitoring of safety and effectiveness
- The public health benefits
- System operation (e.g. water treatment issues, fluoridation levels etc).

★ Further Reading Podcasts, eBooks Videos

The British Fluoridation Society bfsweb.org
The American Fluoridation Society americanfluoridationsociety.org
UK Government website [eg https://bit.ly/gov-publications](https://bit.ly/gov-publications)

Talking fluoride in water:
A short video in which enthusiasts
discuss fluoride in water



Video produced by
our American
colleagues; a
comprehensive
summary of fluoride
in water



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evidence base for
fluoridation with key
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