What Is Fluoride and What Is It Used For? | Core Dental

Canonical: https://www.coredental.com.au/what-is-fluoride-and-what-is-it-used-for/

Details:

Fluoride is a compound of the element fluorine that occurs naturally in soil and water. It has been used in toothpaste and drinking water around the world since the 1930s to help prevent tooth decay. Fluoride works by strengthening tooth enamel so it is less susceptible to acid attack from bacteria and acidic foods and drinks. At Core Dental we explain how fluoride fits into daily care, and your dentist can advise which fluoride products suit your own risk of decay.

What is fluoride?

Fluoride is a mineral compound that occurs naturally throughout the environment, in soil and in water. Its link with teeth was first noticed when an American dentist was researching brown discolouration in teeth. Since then, a large body of dental research has examined how fluoride supports tooth health, and it is widely used to reduce the risk of decay.

Since when has fluoride been used to prevent tooth decay?

Fluoride has been used worldwide in toothpastes and in drinking water since its discovery in the 1930s. Today fluoride is also available in other forms, such as mouth rinses, gels and varnishes that a dentist can apply. Your dentist can explain whether any of these suit you.

How does fluoride protect teeth from decay?

Tooth decay happens when the tooth surface is attacked by acid again and again. The acid comes from bacteria in dental plaque, which feed on sugars and other fermentable carbohydrates, for example in soft drinks. Acids also come from sources such as reflux and citric acid.

Acid attacks slowly weaken the tooth surface and may eventually cause a hole, or cavity. Saliva helps by neutralising acid, and when calcium and phosphate are present the tooth surface can microscopically repair itself. Dairy products are high in calcium, and foods such as cereals, rice and pasta contain phosphate.

Fluoride adds to this natural repair process. When it contacts the tooth surface or mixes with saliva, the enamel takes it up, which makes the surface stronger and less susceptible to acid attack from bacteria and acids.

Why is fluoride important for children?

Fluoride plays an important role in childhood and through the teenage years, while the teeth are still developing. When children drink fluoridated water, the fluoride they take in strengthens their teeth while they are still growing, which means the tooth is already protected before it erupts. Fluoride toothpaste then adds protection on the surface of the teeth once they are in the mouth. Ask your dentist what is suitable for your child's age, including how much toothpaste to use.

How much fluoride do toothpastes contain?

Most toothpastes sold in Australia contain fluoride. The amount varies between products, but it is typically around 1000 to 1450 parts per million (ppm). Higher strength fluoride toothpastes are available from pharmacies for people at higher risk of decay.

Who might need a higher strength fluoride toothpaste?

People at higher risk of decay may be advised to use a higher strength product. Signs that your risk may be higher include:

recent fillings

feeling that you always seem to need new treatment even though you attend regular check-ups

being told by your dentist that some areas of your teeth are being watched

If this sounds like you, our dentists may recommend a higher strength fluoride toothpaste after examining your teeth. Please follow your dentist's directions, because higher strength products are not suitable for everyone.

What should you consider if you are thinking about avoiding fluoride?

Fluoride has long been a topic of public discussion. Our role as dental practitioners is to share clear information and respect each person's choice. If you decide to avoid fluoride, we suggest you consider the following.

Never deliberately expose your teeth to acids, such as frequent sipping of soft drinks.

Make sure your oral hygiene and plaque control are thorough, with careful brushing and cleaning between the teeth.

Avoid over-brushing, which is common and can cause problems with both teeth and gums. Steer clear of very abrasive products.

There is a range of non-fluoride toothpastes on the market. Please check the ingredients and talk to your dentist before you switch, and be cautious about advice from social media.

Our dentists can talk through your personal risk of decay and the options at your check-up, without pressure.

How can we help?

If you would like advice about fluoride, toothpaste or reducing your risk of decay, our team can help at any of our nine Core Dental clinics. When you book, explain your concerns and bring relevant medical information and a current medicines list. Your dentist will assess your teeth and gums, request imaging when clinically appropriate, and explain which options are suitable, along with what they involve and any limitations. Review intervals and prevention should be tailored to your own oral health risks rather than assumed to be the same for everyone. Call 13 13 16 or book online. You can also read about dental check-ups , dental hygiene and children's dentistry .

Call 000 immediately for uncontrollable bleeding, breathing or swallowing difficulty, a serious facial injury or other life-threatening symptoms. For severe tooth pain or swelling without those signs, contact your dental practice promptly.

What fluoride is, and the mechanism in one sentence

Two claims get made about fluoride constantly, in opposite directions, and the published description settles both.

The Victorian Department of Health: "fluoride is not a medication. It is a mineral found naturally in rock, air, soil, plants and water. All fresh and sea water contains some fluoride."

That disposes of the framing of fluoride as a drug added to water. It also disposes of the opposite framing — that because it is natural it must be harmless in any quantity. Neither follows. It is a mineral, present naturally everywhere, and the question that matters is dose, which is why the children's guidance further down this page is specific about amounts.

On how it works, the Department gives the mechanism plainly: "tooth decay occurs when acid attacks the surface of the tooth. Fluoride helps repair any damage before it becomes serious. A constant low-level supply of fluoride is best for this. Fluoride in your drinking water is like a constant 'repair kit' for your teeth."

The phrase to hold onto is constant low-level supply . Fluoride is not a treatment you take and finish. Its value is in being present regularly in small amounts — which is why brushing twice a day with a fluoride toothpaste does more than an occasional intensive measure, and why the Department lists three delivery routes rather than one: fluoridated drinking water, "fluoride toothpastes, gels and mouth rinses", and "fluoride products painted on the teeth by a dental professional".

The Department also makes a point about who benefits most, which is easy to skip past: fluoride "provides a benefit to all people, especially individuals from low socioeconomic communities, who have less access to other forms of fluoride treatments." Water reaches people that products and appointments do not.

A note on the source: this particular Department of Health page states its own review date as 30 April 2012. The description of what fluoride is and how it works has not changed, which is why we quote it; for the current position on the safety of water fluoridation we rely instead on the NHMRC's 2017 public statement, which is more recent.

Sources: Better Health Channel (Victorian Department of Health), Dental care — fluoride, betterhealth.vic.gov.au (page reviewed 30 April 2012); NHMRC, Water fluoridation and human health in Australia, nhmrc.gov.au . Both accessed 4 November 2026.

Dental fluorosis: what it is, and what it is not

The honest counterpart to any page about fluoride is the condition that too much of it causes in childhood. The Department describes it precisely, and the precision is the useful part.

"Too much fluoride at an early age can cause a child's adult teeth (which form underneath their baby teeth) to stain. This is called dental fluorosis. Dental fluorosis looks like fine, pearly-white mottling, flecking or lines on the surface of the teeth; it is usually very hard to see. It cannot develop after teeth are fully formed and does not affect the function of the teeth. Dental fluorosis can occur in areas with or without water fluoridation."

Four things in that passage are worth separating, because each answers a different worry.

It is a childhood-only risk. It "cannot develop after teeth are fully formed". An adult cannot acquire fluorosis from toothpaste or tap water.

It is usually subtle. "Fine, pearly-white mottling, flecking or lines", and "usually very hard to see". The severe mottling people picture is not the typical presentation.

It does not harm the tooth. It "does not affect the function of the teeth" — it is an appearance issue.

It is not caused by fluoridated water alone. It "can occur in areas with or without water fluoridation", which is the Department's way of pointing at the real variable: how much fluoride a young child

swallows, mostly from toothpaste.

And the mitigation is simply the dose guidance: "by following the toothpaste guidelines above, the chance of dental fluorosis occurring can be minimised."

One more distinction that saves unnecessary alarm. White or mottled marks on a child's teeth are not automatically fluorosis. The Department notes that "if fluoride is not the cause of staining of the teeth, it is not called dental fluorosis", and lists other causes: "injury to the teeth", "certain medications" and "childhood infections". If you have noticed marks on your child's teeth, that is a reason for an examination rather than a reason to stop using fluoride toothpaste.

Source: Better Health Channel (Victorian Department of Health), Dental care — fluoride, betterhealth.vic.gov.au (page reviewed 30 April 2012; accessed 4 November 2026).

Frequently asked questions

Is fluoride naturally occurring?

Yes. Fluoride is a compound of the element fluorine, and it occurs naturally in soil and water. Many communities also adjust the level of fluoride in drinking water, and fluoride is added to many toothpastes.

Does fluoride repair early tooth damage?

Fluoride supports the natural repair process. When calcium and phosphate are present in saliva, the tooth surface can microscopically repair itself, and fluoride taken up by the enamel makes the surface less susceptible to further acid attack. It cannot repair a cavity that has already formed.

Do children need fluoride toothpaste?

Fluoride has a useful role in protecting children's developing teeth. The amount of toothpaste and the strength suited to a child depend on their age and risk of decay, so please ask your dentist what is suitable for your child.

Can I stop using fluoride if I brush well?

That is your choice, and our dentists respect it. If you avoid fluoride, thorough plaque control becomes even more important, so brush carefully, clean between the teeth and limit acid exposure from frequent sugary or acidic drinks.

Is higher strength fluoride toothpaste safe for everyone?

No. Higher strength toothpastes are made for people at higher risk of decay and should be used as your dentist directs. Ask us before you start, particularly for children.

Is fluoride a medication?

No. The Victorian Department of Health states: "fluoride is not a medication. It is a mineral found naturally in rock, air, soil, plants and water. All fresh and sea water contains some fluoride." That cuts both ways, though — being natural does not make dose irrelevant, which is why the children's toothpaste amounts are specific.

How does fluoride actually protect a tooth?

By helping it repair. The Department's description: "tooth decay occurs when acid attacks the surface of the tooth. Fluoride helps repair any damage before it becomes serious. A constant low-level supply of fluoride is best for this." The key phrase is constant low-level supply — regular small amounts, not occasional large ones.

Does boiling or filtering water remove fluoride?

Mostly not. The Department notes that "boiling the water does not significantly change the levels of fluoride added", and that "most home water filters do not remove fluoride, with the exception of reverse osmosis systems". It also notes fluoride "has no taste or smell", and that "all Australian capital cities have fluoride added to the water" — your local water authority can confirm your own supply.

Can an adult develop dental fluorosis?

No. The Department states that dental fluorosis "cannot develop after teeth are fully formed". It is a risk during childhood tooth development only, it "does not affect the function of the teeth", and it "can occur in areas with or without water fluoridation".

My child has white marks on their teeth. Is that fluorosis?

Not necessarily. The Department is explicit that "if fluoride is not the cause of staining of the teeth, it is not called dental fluorosis", and lists other causes including "injury to the teeth", "certain medications" and "childhood infections". Fluorosis itself usually appears as "fine, pearly-white mottling, flecking or lines" that is "usually very hard to see". Marks on a child's teeth are a reason to book an examination, not a reason to stop fluoride toothpaste.

Related services and further reading

Dental check-ups

Dental hygiene

Children's dentistry

Why should I use fluoride toothpaste?

Can you reverse tooth decay?

Brushing teeth: are you doing it right?

Healthy snacks to help prevent tooth decay in children

4 things to avoid if you have sensitive teeth

Core Dental at a glance

Nine Core Dental clinics across Melbourne: Southbank, South Melbourne, Caroline Springs, Carrum Downs, Epping, Wyndham, Berwick, Bayside and Glenferrie.

Open six days a week, with Monday to Friday hours to 6.00pm and Saturday mornings.

We quote before treatment starts and offer interest-free payment plans.

Contact Core Dental

Phone	13 13 16
Booking	Online through coredental.com.au, or call 13 13 16
Hours	Monday to Friday 8.00am to 6.00pm, Saturday 8.00am to 1.30pm (Bayside Saturday 8.30am to 1.30pm), Sunday closed

This article is general in nature and does not replace advice from a registered dental practitioner who has examined you. Results, recovery times and potential risks vary for each individual. Seek advice from a qualified, AHPRA-registered practitioner before proceeding.

What does fluoride do for teeth?

Fluoride strengthens tooth enamel and makes it less susceptible to acid attack from plaque bacteria and acidic drinks. Core Dental dentists may also recommend fluoride products for people at higher risk of decay.

Where does fluoride come from?

Fluoride is a compound of the element fluorine that occurs naturally in soil and water. It is also added to many toothpastes, and at Core Dental we talk to patients about which fluoride products suit their needs.

How long has fluoride been used in dentistry?

Fluoride has been used in toothpaste and drinking water worldwide since the 1930s to help prevent tooth decay. Our Core Dental team can explain how fluoride products fit into your daily care.

How does acid cause tooth decay?

Plaque bacteria feed on sugars and produce acid, and acid also comes from reflux and citric acid. Repeated acid attacks weaken enamel and may eventually form a cavity. Core Dental dentists can check your teeth for early signs.

What is the usual fluoride level in toothpaste?

Most fluoride toothpastes contain about 1000 to 1450 parts per million of fluoride. Higher strength products are sold through pharmacies. Core Dental dentists can advise whether one suits you after an examination.

Which people may need higher strength fluoride toothpaste?

People at higher risk of decay, such as those with recent fillings or areas their dentist is watching, may be advised to use higher strength toothpaste. Core Dental dentists decide this after examining your teeth.

How should I care for my teeth if I avoid fluoride?

Keep plaque under tight control with careful brushing and cleaning between the teeth, limit acid exposure and avoid abrasive products. Core Dental hygienists can show you suitable techniques at your visit.

How do I book a check-up at Core Dental?

Call 13 13 16 or book online through coredental.com.au at any of our nine Melbourne clinics. Tell us about your concerns and your dentist will examine your teeth and explain your options and costs.