Chapter 2

What is a healthy tooth?

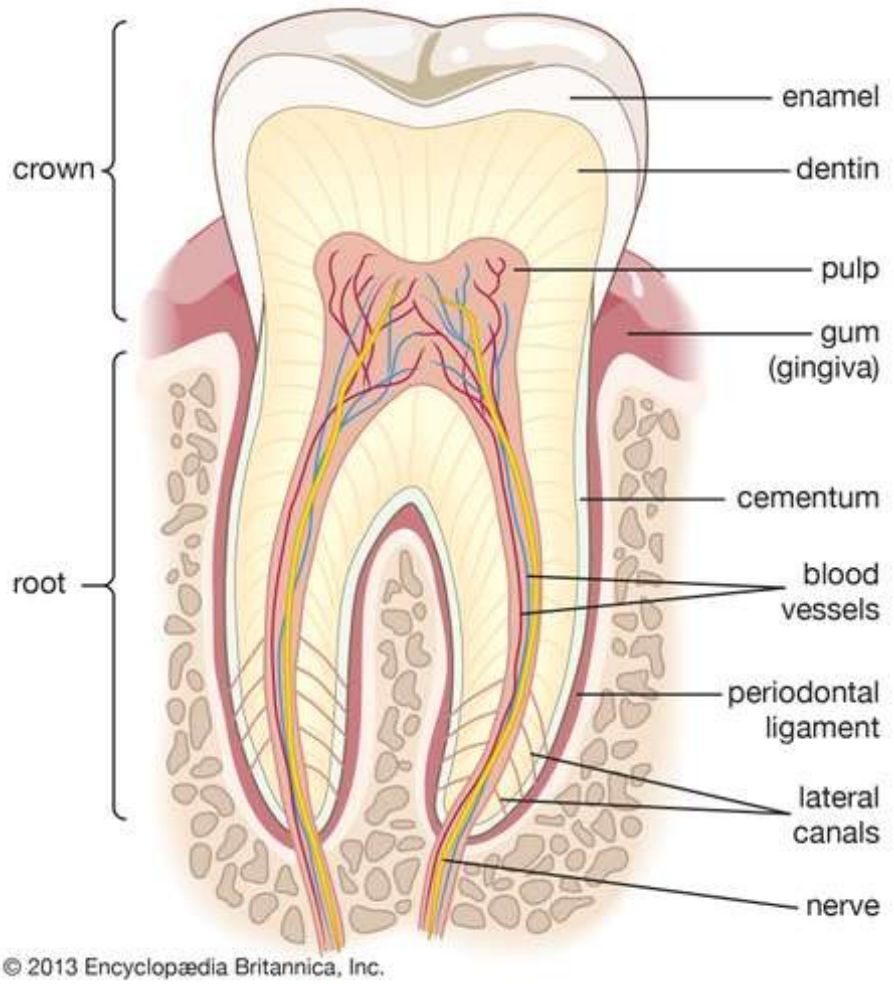
It is possible to have a set of healthy teeth to last into old age – see picture Appendix 2 (d), of an 83-year-old gentleman who has a beautiful set of lustrous, white teeth, all his own. This gentleman has never had a filling, and has only had three or four back teeth removed, this after the age of 60 due to abscesses. He does not have a bridge or denture to replace the lost teeth. As a child he would flush his mouth with water after eating and from time to time he would rub toothpaste on his teeth with a finger. This gentleman was not taken to a dentist in his childhood to check out his teeth.

As mentioned in chapter 1, healthy gums and teeth are most important as they can determine our degree of disability in older age and even how long we are likely to live, while tooth loss is “independently associated” with disability and mortality. (1)

And it has to be remembered that the teeth are part of the whole body, the same blood goes to them that goes to all the other parts of the body.

The editors of Encyclopaedia Britannica write the following about tooth anatomy:

Tooth, plural **teeth**,



Cross section of an adult human molar. Encyclopaedia Britannica, Inc.

A tooth consists of a crown and one or more roots. The crown is the functional part that is visible above the gum. The root is the unseen portion that supports and fastens the tooth in the jawbone. The root is attached to the tooth–bearing bone – the alveolar processes – of the jaws by a fibrous ligament called the periodontal 77ligament or membrane. The ‘neck’ of the root is embraced by the fleshy gum tissue (a specialised area of covered with mucous membrane that lines the mouth cavity). The shape of the crown and root vary among the different teeth.

Dr David Kennedy in his book tells us that:

"At birth, the tops of a baby's teeth have already been formed, although some of these temporary teeth will not begin to erupt until age two. Some of the permanent teeth start to form before birth, although they won't begin to erupt for six more years. The enamel of the permanent teeth continues to form until the child is about 12 years of age."

Mark A. Breiner DDS in his book, 'Whole Body Dentistry' pub. 2011, explains:

"The white enamel of the tooth is hard and durable. It is the hardest substance found in human beings. (Enamel is comprised of the mineral calcium phosphate, arranged in a crystal structure known as hydroxyapatite or calcium hydroxyapatite. The enamel has has no blood supply or nerve endings but running through it are microscopic tubules). The hidden part of the tooth (root) is suspended in bone and covered with another material called the cementum. Ligaments attached to the cementum hold the tooth in place in the bone. These periodontal ligaments are somewhat flexible so that the tooth can move slightly. In the centre of the tooth is the pulp which is comprised of nerve endings, blood, and tissue. Under the enamel and the cementum is the dentine, a calcified structure forming the bulk of the tooth which is constituted of collagen fibres. It isn't as hard as enamel but also contain millions of microscopic dental tubules as well as very fine nerve fibres." (2)

[It is estimated that the percentage of dentinal tubules which contain nerve fibrils is 25 % in the pulp horns, 15 % in the coronal dentin, and 10 % in the radicular dentin (Holland 1981). Also, the nerve fibrils may extend up to 1 mm into the dentinal tubule (Lilja 1980)].

"All the tubules are filled with fluid that flows constantly between the dentine and the enamel and through the nerve endings and the blood vessels in the centre of the tooth. A constant exchange of nutrients between the tooth and the rest of the body takes place within the fluid. Studies done on rats have demonstrated this dynamic interchange. When a fluorescent dye (radioactive acriflacin hydrochloride) was injected into the abdomen of rats, the dye was found within six to 10 minutes in the dentinal tubules and in the enamel within an hour." (3)

"Dr Steiman believed this action to be a self-cleansing mechanism – a supporting environment for dentine. The constant flushing of the tooth structure prevents the movement of microbes into the tooth and prevents the destructive effects of acids formed by foods. At the same time, essential nutrients are introduced into dentine tubules in order to provide a life-supporting environment for dentine." (4).

Dr Dominik Nischwitz, in his book published in 2020, informs us of other important parts of our mouth; for there is also a 'magic shield' on our teeth called the pellicle. He says that our teeth are not only moistened by saliva but are permanently coated by pellicle, a film that give a wonderfully smooth feel to our teeth.

"This film is broken many times a day… but re-forms in the blink of an eye, over and over again… it is an entity, a unit in itself just like the tongue or teeth… While saliva flows around our teeth, the pellicle has the properties of a solid and sticks to our teeth." Dr Nischwitz also informs us about 'mucins' – fluids which give saliva its typically slightly slimy consistency.

To read more see, 'It's all in your mouth' by Nischwitz.

In other words, in a healthy mouth, nutrients and oxygen are delivered by way of the blood stream into the root of the tooth. The tooth gets 'nourishment' and passes the fluid out of the tubules, through the dentine and into the enamel. This fluid flow is from the centre, out through the tubules and into the mouth.

Dr Dirk, in an interview with Dr Andrew Kaufman on May 13th 2020, described this outward flow process as an internal toothbrush so that plaque or bacteria could not settle on the tooth and were 'somehow' washed away. This process happened because of the parotid gland, situated in the cheeks, which is part of the endocrine system. This gland secretes saliva and also releases a parotid hormone which controls this outward flow action. The switch for the parotid gland to release the hormone comes from the hypothalamus gland. If this action is disrupted and reversed, the tooth acts like a sponge, collecting bacteria and plaque. Dr Dirk suggests that it is the K2 vitamin that sends the signal to the hypothalamus to flow outwards, while sugar sends the opposite signal.

So, it is important to note that the fluid flow within the tooth is affected and reversed by a number of things – acid pH, diet, lack of vitamins and minerals, and stress. Particularly important for good teeth are the Vitamins D, K2 and A and C. (5)

Also found to be important for tooth and bone health is the formation of hydrogen bonds (electro-magnetic attractions between positive and negative poles of atoms). They play a crucial role in many biological processes, holding together DNA and proteins, among others. In the natural world an example is wool, which is held together by hydrogen bonds that cause the wool to recoil when stretched. Washing at high temperatures can permanently break hydrogen bonds, however, and a garment may permanently lose its

shape. In the tooth, certain chemicals may and can disrupt this delicate building process connected to the formation of hydrogen bonds – fluoride for example.

The mouth has its own microbiome necessary to keep teeth healthy. Not all bacteria in the mouth are harmful; rather they are necessary for a healthy mouth. Good bacteria play a big role in controlling our pH, they help in digesting foods, they produce vitamins, protect us from toxins, and make the neurotransmitters in our brain. Bacteria at the back of the tongue produce Nitric Oxide (NO) which is very short lived, about 0.25 of a second, but which is very important. We produce 25% of the body's need of it just by breathing. A lack of NO can lead to heart disease and erectile dysfunction.

It is interesting to note that different organisms and bacteria reside in different parts of the mouth and teeth. (6)

Currently we are told there are 500 - 800 organisms that live in the mouth and we swallow a trillion bacteria every day. It is estimated that bad bacteria only make up about 1% of the total population of a healthy mouth – but when out of balance they can wreak havoc, disease or dysbiosis, meaning that the microbiome is out of balance. (7)

Over 100 years ago, Dr Weston Price showed that there were 10,000,000 to 500,000,000 organisms taken from a pin-head size of debris from a decaying tooth. He compared an immune mouth (healthy mouth) with 10,000,000 compared to an unhealthy or dirty mouth with 500,000,000 organisms. He said that:

"The number of organisms (present) being almost proportional to the decay." (8)

Dr Dominik Nischwitz, who has served as president of the International Society of Metal Free Implantology (ISMI) since 2019, reminds us in his interview with Dr Joseph Mercola in March 2020 that:

"Teeth are organs that are connected to your whole nervous system and basically are part of your brain, kind of like your eyes. You have this massive brain nerve there called the trigeminal nerve. It's one of the 12 cranial nerves and takes up 50% of the space of all the other ones, so it's quite important." (The teeth are connected to this trigeminal nerve).

Tooth decay

Several things contribute to tooth decay.

1) Acids in the mouth can slowly dissolve the enamel, allowing bad, cariogenic bacteria (causing tooth decay), Streptococcus Mutans, to enter, particularly if the fluid flow within the tooth is flowing inwards.

These acids arise in the mouth and come from:

a) soft drinks such as Pepsi and Coca Cola

b) saliva which should be alkaline becomes acid after eating too many carbohydrate foods such as grains

c) lactic acid in the mouth, caused by the bacteria *Streptococcus Mutans* converting dietary sugars, such as sugar and grains, then remain stuck to the tooth. (9)

d) a dry mouth, becomes an acidic mouth when good 'alkaline' saliva stops protecting and nourishing teeth and gums. (10)

Acid causing dental decay is clearly seen in 'Baby Bottle Tooth Decay' (BBTD); see Appendix 2 a), for photo. This type of decay develops during infancy and early childhood as the result of extended exposure to sugary drinks. It occurs when sweetened liquids or those with natural sugars stay on an infant's teeth for a long time. Milk, formula milk, fruit juices, even Coca Cola are common causes of BBTD. Bacteria in the mouth flourish from the sugar, and make acids that harm teeth. (11)

It is from sucking 24/7 on a sweet drink in a bottle or dummy which can happen when a caring parent attempts to pacify an infant. In this type of BBTD, the top teeth are the first to decay while the bottom ones are saved for a while. Such an effect cannot be overcome by toothbrushing, toothpaste or fluoride. (12)

BBTD often leads to extraction under anaesthesia.

2) Tooth decay increases as fluoride concentration in water increases, or from other sources, increases. (13)

A study published in 2020 found that children aged from three to eleven years with higher concentrations of any of seven chemicals made from fluoride such as perfluoroalkyl and polyfluoroalkyl (PFAS) in their blood are more likely to get cavities. PFAS are what makes non-stick cookware, 'Teflon' for example. They are also used in food packaging such as microwave popcorn bags and fast-food wrappers, in stain-resistant carpets, rugs and furniture, outdoor gear with a 'durable water repellent' coating, firefighting foam, ski wax, and have various aerospace, medical, automotive and industrial applications. These chemicals are now universal as a

result of extensive manufacturing and use and, as it is difficult for them to break down, they persist within the environment, especially in drinking water systems. (14)

For more information on persistent chemicals see Appendix 6.

3) Mineral deficiency can lead to poor teeth. Prof S.P.S. and Prof M. Teotia of King George's Medical College, Lucknow, India, have suggested that dental caries can be caused by high fluoride and low calcium levels. (15)

Others have suggested that low magnesium levels in a water supply can contribute to dental decay and high magnesium levels can improve tooth health. "*The recommended dose of magnesium/day is 270mg for a 19-year-old woman so children ought to ingest 100 and 200 mg/day."* (16)

The Weston Price Foundation states:

"Numerous studies, have established the fact that it is dietary magnesium, not calcium, (and certainly not fluoride) that creates glassy hard tooth enamel that resists decay, and strong and resilient bones. Regardless of the amount of calcium you consume, your teeth can only form hard enamel if magnesium is available in sufficient quantities." (17)

A deficiency of boron has been found to cause dental decay as boron is essential for bone and tooth development. (18)

4) Melvin Page's research showed that sugar causes tooth decay by causing an imbalance in body chemistry which in turn depletes nutrients from the body. (Source: WDDTY July 2008. vol 19 no 4). Whenever there is an imbalance, minerals are 'pulled' from tooth dentine and bones, causing a loss, while at the same time, saliva becomes acidic which adds to erosion of the enamel. If the dentine is well nourished, it is hard and dense, and resistant to bacterial invasion. (19)

5) If the antibiotic tetracyline, is used on patients under the age of 8 years, this can cause tooth staining which may look like decay.

Mark Breinner states that for tooth decay to occur, three conditions must be met:

1. A specific type of bacteria must be present.
2. Fermentable carbohydrates must be present.
3. The tooth must be susceptible.

If only the first two conditions are present with the tooth being naturally healthy and strong, no decay will take place. Or, if the third condition is present but not the first or second, no decay will occur.

The real key to avoiding decay is to have a healthy tooth in the first place (see Appendix 2,d for a photo of an elderly man with healthy teeth.)

To avoid teeth being 'susceptible' to decay and in order for healthy teeth to grow, pregnant mothers and then the babies and infants must have good nutrition. Processed foods often lack essential minerals and vitamins and are especially low in magnesium, something as shown above, which is highly beneficial for healthy teeth. Even if there is magnesium in the diet, this becomes unavailable to the body if processed meats such as luncheon meats and hot dogs or carbonated drinks are consumed. The phosphates contained in these foods and drinks bind with any magnesium present, becoming magnesium phosphate which the body is then unable to use successfully. If fluoride is present, it also binds with the magnesium, making it ineffective for correct bodily use. Some UK tap waters are deficient in magnesium. (20)

Eating healthily and eating organically helps to keep the fluid flow within the tooth structure flowing from the pulp outwards, through the dentine and enamel and into the mouth. In this way decay can be prevented or arrested because this positive outward pressure prevents the penetration of destructive by-products. (21)

Weakened teeth

1) Dental Fluorosis – mottled teeth. photo Appendix 2, b)

Dental fluorosis (fluorotic enamel) is caused by an excess of fluoride and can be mild to severe.

A mild form of dental fluorosis presents as white specks and streaks on the teeth, while, in its advanced forms, it causes brown and black staining and pitting of the enamel. The enamel is unnatural and makes the teeth brittle, less robust, even porous, giving rise to more decay and dental work in the future.

Dean Murphy D.D.S says in his book that,

"Fluorotic enamel is more porous and structurally weaker, having a wear resistance that is commonly 40 to 60% (less than) normal." (22)

Even mild mottling can become stained and unsightly in later life and in the words of the great, researcher and pioneer, Dr H. V. Smith,

"Mottling, no matter how mild, is an external sign of internal distress". (23)

Dental Fluorosis is caused in children by their mothers ingesting and/or absorbing fluoride when pregnant, or by babies and infants ingesting fluoride during their early years when teeth are forming under the gum. For babies and infants, this intake is mainly through drinking formula milk made up with water that has been fluoridated. Ingesting fluoridated toothpaste during childhood is also a major risk factor for dental fluorosis. (24)

In 1952 Charles E Perkins wrote,

"A consensus of available information on the subject indicates that the point at which mottling appears in the average child is 0.5 ppm (of natural fluoridated water, calcium fluoride)…...It should be remembered that the water in naturally fluoridated areas contains calcium fluoride, in combination with other natural minerals and salts that, to some extent, counteract certain physiological effects of the fluorine, whereas the artificiality fluoridated water is a much different proposition". (25)

Prof A. K. Susheela reminds us in her book, 'Treatise on Fluorosis', published in 2007, that dental fluorosis and dental decay should be easy to distinguish between but, when dentists have not been trained in this understanding and do not have the knowledge, as most do not, these two areas can easily become confused and blurred.

British researchers estimate the prevalence of dental fluorosis of all levels of severity to be 15% in non-fluoridated areas and 48% in fluoridated areas. For maps of fluoridated areas in the UK, go to Appendix 15. (26)

Professor Stephen Peckham pointed out in 2012 that the McGrady study 2012 re: fluorosis showed a six-fold increase in the most damaging levels of fluorosis between fluoridated and non-fluoridated areas. The World Health Authority defines dental fluorosis as a health problem and it is widely accepted that dental fluorosis is a manifestation of systemic toxicity. (27)

The York Review and Australian NHMRC systematic reviews concur that fluorosis of aesthetic concern will be in the range of 7 – 14% and that water water fluoridation is significantly associated with high levels of dental fluorosis.

In fluoridated areas some 35% of children have dental fluorosis, with studies in naturally fluoridated Newcastle UK and artificially fluoridated Hong Kong identifying levels of 54%. Studies have shown that between 2 and 7% of children have mild to severe brown staining. (28)

In the USA Beltran-Aguilar (2010) found levels of moderate to severe fluorosis in 7% of 12 – 15 year old children.

The discolouration of the teeth can produce behavioural changes, transforming a happy, outward-going child into an introverted, unhappy one, scared of smiling for fear of showing their teeth. No doubt the result of bullying for having such 'dirty' teeth. This can follow them into their working lives where their demeanour and loss of confidence can mean they fare less well at job interviews and end up in lower paid jobs. (29)

People For Poisoned Children (PFPC) have a list of 50 studies from 1996-2020 on their website: https://poisonfluoride.com/dir/ confirming the following;

"The fluoride upsets the normal development of the tooth. This happens within tooth enamel, dentine and within the lattice of the tooth. The fluoride impairs proper growth, resulting in incomplete growth of apatite crystals within the enamel and dentine". (30)

"Normal, strong, shiny, tooth enamel is made up of calcium hydroxyapatite, but fluoride is able to break the hydrogen bonding of this process and reforms as calcium fluoroapatite which makes less durable and less lustrous enamel, causing dental fluorosis, a staining of the teeth that can be mild to severe".

In simple language, fluoride combines with calcium in the body, forming calcium fluoroapatite which is then inappropriately utilised. (31)

Interestingly three research studies by a) Irigoyem-Camacho 2015, b) Kajale 2015, and c) Whitford 1990, linked poor nutrition, especially lack of calcium intake, to increased prevalence and severity of dental fluorosis.

Very early on, in 1916, Black and McKay reported a classic description of dental fluorosis, mottled teeth, in Colorado Springs with 2.5 ppm, calcium fluoride (natural fluoride) in the water supply;

"When not stained with brown or yellow, they are a ghastly, opaque white….When this opaque white colour is mingled with spots of brown, or a very large portion of brown, the injury is still greater, On very many cases the teeth appear absolutely back as one sees them in ordinary social intercourse"

"Mottled enamel (dental fluorosis) is distinguished by the absence of cementing substance between the enamel rods in the outer fourth, more or less, of the enamel, and presenting great variety of colour, rendering it totally different from anything else I have known".

"When these (mottled teeth) do decay, the frail condition of the enamel makes it extremely difficult to make good and effective fillings. For this reason many individuals will lose their teeth….This is much more than a deformity of childhood…..it is a deformity for life".

In 1940 researchers M.C. and H.V. Smith, concurred with these observations;

"There is ample evidence that mottled teeth, though they may be somewhat more resistant to the onset of decay they, are structurally weak, and that unfortunately when decay does set in, the result is often disastrous",

"Steps taken to repair the cavities in many cases were unsuccessful, the tooth breaking away when attempts were made to anchor the filling, so that extraction was the only course".

and WF "*seems, to put it mildly, unsafe*". (32)

Children from black communities are more susceptible to dental fluorosis. Michael Connett writes in June 2012, in Fluoride Action Network that:

"Numerous, dental studies including a national survey by the Center for Disease Control (CDC), have found that black children suffer significantly higher rates of dental fluorosis than white children." (33)

Not only do black children suffer higher rates of fluorosis, they suffer the most severe forms of the condition which are marked by dark brown staining and deterioration of the enamel. While the reasons for this increased rate of fluorosis have yet to be definitively determined, there are several risk factors for fluoride toxicity that are present at elevated rates in the black community. These risk factors include:

1. Reduced nutrient intake.
2. Higher levels of lead exposure.
3. Higher prevalence of health conditions (e.g. kidney disease and diabetes) that render the body more vulnerable to fluoride intake.
4. Higher intakes of fluoride.
5. The high prevalence of lactose intolerance, milk intolerance, within the back community. (Byers 2005). Milk, with its high calcium content, is the antidote for fluoride.
6. Difference in genetic make-up of different racial groups.

While at one point it was generally believed that very mild and mild dental fluorosis (DF) was associated with a decrease in caries in younger children, new evidence shows that the same forms of DF actually causes an increase in both caries occurrence and intensity as the child gets older. (34)

Animal and laboratory studies

On 18th February, 2020**,** an animal study was published in Science Signalling and reported on how fluoride could cause defects in tooth enamel, dental fluorosis. The senior author was Rodrigo Lacruz, PhD, associate professor of basic science and craniofacial biology at NYU College of Dentistry in the USA.

The researchers found that exposing enamel cells from rodents to fluoride resulted in calcium dysregulation, with decreases in calcium entering and stored in the endoplasmic reticulum, a compartment within cells with many functions, including storing calcium. In addition, fluoride disrupted the function of mitochondria (the cells' power generators), and therefore energy production was altered. Finally, RNA sequencing—which queries the genomes of cells—revealed that, in enamel cells exposed to fluoride, there was an increased expression of genes encoding endoplasmic reticulum stress response proteins and those encoding mitochondrial proteins, which are involved in producing the cell's energy. Lacruz said that,

"*This gives us a very promising mechanistic view of how fluorosis arises…..If your cells have to make enamel, which is heavily calcified, and due to exposure to too much fluoride the cells undergo continued*

stress in their capacity to handle calcium, that will be reflected in the enamel crystals as they are formed and will impact mineralization." (35)

In 2021, a study from the New York University College of Dentistry, working on a line of ameloblast cells grown in dishes, came to a similar conclusion relating to calcium disruption and dental fluorosis. The authors of this study wrote in 'Frontiers in Endocrinology' on August 11, that,

"Exposure to a sodium fluoride solution of just 0.2 ppm has been found to disrupt the internal calcium-signalling functions of cells that produce enamel."

The authors adding that

"In addition to their structural roles in bone and teeth, calcium ions serve as messengers in cells that bind to proteins and regulate their function. These signal functions are highly sensitive to calcium ion concentrations."

And concluded,

"These data, we believe, provide a mechanism that can potentially address the biology of dental fluorosis or, at the very least, provide important information on the effects of fluoride in ameloblast Ca2+ physiology."

These authors, who expressed uncritical support for water fluoridation, made no comment on the relevance of their finding for the regulation of fluoride in drinking water. (36)

Kakei et al (2012) found that;

"*The fluorosed enamel crystals demonstrated voids in the centres of their crystals… indicating that there is no safe level of fluoride."*

In a 30-minute documentary on TV's Channel 4, investigator Bob Woffinden (August 21st 2011, 'Don't Swallow Your Toothpaste'), showed the harm to children in Bedfordshire where the water supply was fluoridated. The story of Jenny and Alan Matthews and their three children, Amanda, Stewart and James can be seen at this link https://www.youtube.com/watch?v=ua7i8akFeOwl. The obvious harm was dental fluorosis.

Diagnosing dental fluorosis

Thylstrup and Fejerskov index for diagnosing dental fluorosis is seen as superior to Dean's index.
"The Thylstrup and Fejerskov Index is more applicable for measuring DF [dental fluorosis] severity in areas with high or low fluoridated areas; it is considered a sensitive method because it allows the affected tooth to be carefully classified by correlating clinical and histological features. Despite being defined more than 40 years ago, it contributes to avoiding underestimating teeth affected by fluorosis; and is the most suitable for use in the clinical management of DF," writes A. Saldarriaga and others in a recent report in 'BMC Oral Health'.

Researchers had previously used Dean's index, developed by H. Trendley Dean, the founder of water fluoridation in the US. (37)

Dentists can offer treatments to hide the unsightly effect of dental fluorosis

The following extract is taken from the FAN website.
"Although the enamel defect caused by dental fluorosis is permanent, the tooth discolouration that fluorosis causes can be reduced, and sometimes eliminated, through cosmetic treatment. Treatment options for fluorosis, however, will depend on the severity of the fluorosis. Three common treatment options include:

- *Micro-abrasion: Abrasion involves finely sanding off the outer layer of the enamel. It is a common approach when the fluorosis is very mild and mild. A recent published study indicates that it may also work for moderate fluorosis as well. (Ref: Limeback 2006). However, if the fluorosis is of a more advanced severity, abrasion is probably not a good idea as it ca*n bring to the tooth's surface highly porous enamel that will be prone to attrition.
- *For advanced forms of fluorosis, the two main options are composite bonding and veneers.*
- *Composite bonding: Composite bonding first involves lightly roughening the area of the damaged enamel. After etching the enamel, a composite resin (with a colour matching your teeth) is 'glued' on to the exterior of the tooth.*
- *Porcelain veneers/laminates: Veneers form a ceramic shell over the surface of the tooth. This treatment option is an expensive one, particularly since the veneers may need to be replaced after*

several years." (The estimated, current cost, of porcelain veneers in the UK is around £400 - £1,000 per tooth, the cost over a lifetime would, therefore, be enormous). Author's addition in parentheses

2) Fluoride bombs

Dentine and fluoride bombs – 'crack attack'

Permanent molars which are exposed to fluoride's weakening effect while buried under the gum can develop micro-fissures (micro-cracks) in the 'grooves of the tooth' after eruption because of the pressure exerted on these weakened teeth when chewing food. Bacteria are then able to enter the tooth and cause decay to the underlying dentine without compromising the enamel and without being visible. This decay cannot easily be detected by a dentist's probe and can remain undetected until the enamel finally caves in, showing a 'bombed out tooth'. In dental circles this has become known as a 'dentine bomb'. (38)

Such teeth cannot be filled because the underlying cavity is too large.

"I still see people very regularly in the clinics here at the [New Zealand] School of Dentistry, where I teach, who have teeth that are completely collapsing." (39)

3) Hypomineralisation - irregular calcification, a disorder of ameloblasts, enamel forming cells) – (photo Appendix 2, c,)

Dr Dominik Nischwitz, in his book, 'It's All in Your Mouth', published Feb 2020, mentions another tooth disease that is becoming more common in children and for which the cause remains an enigma for experts.

"Its rather complicated name is 'molar incisor hypomineralisation', or MIH for short –'hypomineralisation' meaning shortage of nutrients. They are sometimes referred to as 'chalk teeth', however, which describes the substance of the affected teeth quite well. The first signs of MIH are often teeth that are cream-coloured or have brown spots on the humps of the molar (back teeth) or incisors (front teeth). Teeth become painful and sensitive to touch. The patches are a sign that the structure of the normally rock-hard enamel is significantly destroyed. The affected teeth can become so soft that they feel like chalk and sometimes simply crumble under strain."

Dr Nischwitz says that MIH affects 10% of children in Germany states the following,

"Several factors have been proposed as potential causes… coeliac disease (gluten intolerance), a disease that prevents the body from absorbing enough nutrients as a result of a permanently irritated intestinal lining, is one. Other suspects include foods that cause inflammations in the gastrointestinal tract and destroy the intestinal mucosa, causing issues with nutrient uptake. These include lectins and agglutinins from wheat and other cereals. Other studies indicate that the plasticiser, bisphenol A, may play a role. In experiments on rats, the rodents developed porous teeth when fed with the substance bisphenol A."

*(*Other potential culprits include some antibiotics in early childhood, the influence of other environmental toxins such as dioxin (and PFAs), and also infectious diseases contracted by the mother during pregnancy.) Authors comment in parentheses.

John MacArthur notes in his book, on Page 19, that,

"Premature infants are frequently affected by tooth enamel anomalies or defects when compared with infants born at term." (40)

MacArthur goes on to state that,

"low birthweight children are more likely than their normal birthweight counterparts to have enamel hypoplasia, a form of DDE (developmental defects of tooth enamel), in which the tooth enamel is hard but thin and deficient in amount." (41)

MacArthur further details these irregularities as being caused by fluoride ingestion by mothers while pregnant.

Dr A.K. Susheela suggests that adults, particularly pregnant women and children, should avoid fluoride intake because, in the stomach, fluoride combines with stomach acid to produce toxic Hydrofluoric Acid (HF). This damages the sensitive villi in the stomach, thereby lowering the body's ability to absorb all nutrients, particularly lowering magnesium levels in the body which are so essential for good teeth and bones.

*(*There is also the possibility of vaccines disturbing the microbiome of the stomach and intestines due to the additives, mercury or aluminium, both of which can cause 'issues with nutrient uptake' for the young child.) Author's comment in parentheses.

Tooth susceptibility leads, in later life, to an increase in gum disease

4) Gum disease

Gingivitis and Periodontal disease

Gum disease is a result of infection which happens when your mouth's microbiome is unbalanced; overrun with bad bacteria, says Dr Burhemme. Periodontal disease is the advanced form of gum disease. Interestingly, it has been discovered that the bad bacteria found in gum disease are different to those which cause enamel to decay.

Three common bacteria found in gum disease are Prevoltella Intermedia, Treponema Denticola, and Porphyromonas Gingivalis. These can invade tissue around the tooth and develop a biofilm to protect themselves. (42)

When the mouth is overrun by the wrong bacteria, just brushing your teeth can send a surge of bacteria into the bloodstream. In this way periodontal disease can get into our bloodstream directly from our mouths, or into the stomach by swallowing or by breaking cell junctions. Fortunately, stomach acids help neutralise most of the bad bugs we swallow, but not all of them. The remaining bugs, either in the stomach or blood stream, can create inflammation throughout the body, leading to a host of chronic diseases such as rheumatoid arthritis, Alzheimer's disease, cardiovascular disease, stroke, pneumonia and bronchitis, diabetes, pre-eclampsia and premature birth. Of all the systemic diseases in your body, 97% start in your mouth. (43)

The question remains; how to keep this microbiome healthy without using substances that may kill both beneficial and bad organisms? Unfortunately, fluoridated toothpaste can increase the overabundance of bad bugs. (44)

Read 'Toxic Teeth' by Y.L. Wright, MA and J.M. Swartz, MD for preventing and treating this condition.

Chapter 2 References

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(4) (Ref: Roggenkamp, Clyde L, PhD, Dentinal Fluoride Transport, Loma Linda, Calif., Loma Linda Univ. Press, 2004).

(5) (Ref: Gateway to Health March 2020).

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(8) (Ref: The Pathology of Dental Infections and Its Relation to General Diseases – Presentation 1926 in Toronto).

(9) (Ref: MacArthur 'Pregnancy and Fluoride Do Not Mix'.)

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