



SUNNYMEDE TRUST
TEETH RELIEF

ORAL HEALTH MANUAL

by

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THIS IS CHAPTER 2 OF 7

DENTAL DISEASE

SEPARATE CHAPTERS MAY BE DOWNLOADED FOR TRAINING PURPOSES BUT PLEASE NOTE: EACH CHAPTER WAS WRITTEN & DESIGNED TO BE READ AS PART OF THE WHOLE MANUAL.

DISCLAIMER

The authors of this manuscript accept no responsibility for the acts or omissions of any individual or groups of individuals, who having utilised the text in this manuscript as their source of information and knowledge, cause unacceptable harm to any patient or to themselves by undertaking procedures described or alluded to, in this manual.

CHAPTER 2:

DENTAL DISEASE

This section will outline the basics of Dental Disease, specifically:

- PERIODONTAL DISEASE
- DENTAL CARIES

DENTAL DISEASE

Dental disease mainly occurs in two forms:

Periodontal Disease (gum disease)

Dental Caries (tooth decay).

The main cause of both diseases is a substance called 'plaque'. Plaque is a thin, sticky, paste that forms in the mouth from a mix of saliva and bacteria. It is present in most mouths and clings onto tooth surfaces and to the margins around the gums and in between teeth. If plaque is not cleared away on a regular basis, the bacteria start to attack the edges of the gums causing inflammation – this is the first stage of periodontal disease.

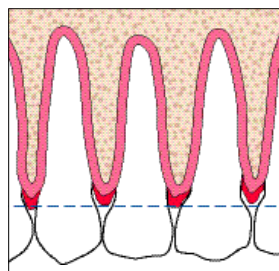
If plaque builds up in the mouth, it will combine with saliva chemicals and start to calcify into a hard, white material that collects around the teeth.

This is known as calculus or tartar. Once this stage occurs, the tartar cannot be removed by simple brushing. Bacteria in plaque can also act to convert sugars into acid. The acid then attacks and erodes the surfaces of the teeth and begins the process of decay.

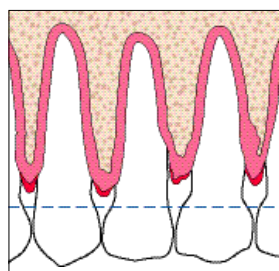
The main cause of Dental Diseases is a substance called 'Plaque'.

PERIODONTAL DISEASE

Many un-decayed teeth have to be extracted because of periodontal disease caused by a build up of plaque. This is how the three stages of gum disease develop:

**Mild**

When too much plaque is allowed to rest around the necks of the teeth, the gums get inflamed – this condition is known as gingivitis.

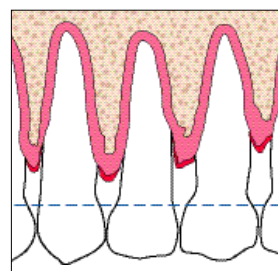
**Moderate**

If gingivitis continues, the gums get baggy around the teeth allowing more plaque and bacteria to penetrate into the periodontal fibres and destroy the supporting bone. This condition is known as periodontitis.

Images courtesy of C Scully, SR Flint, SR Porter, KF Moos: *Oral and Maxillofacial Diseases, 3rd edition*; Taylor & Francis 2004

Advanced

If periodontitis continues un-checked, bone support is reduced to a point where the tooth becomes mobile and will eventually drop out.



HOW TO RECOGNISE GUM DISEASE

Gum disease is a progressive condition so it can be difficult to define each stage precisely. Use this table as a guide to recognise how far the condition has progressed and help monitor improvement.

STAGES OF GUM DISEASE			
Grade 0 Healthy Gums	Grade 1 Gum Disease Gingivitis	Grade 2 Gum Disease Periodontitis	Grade 3 Gum Disease Chronic Periodontitis
WHAT TO LOOK FOR			
Firm	Slightly inflamed	Soft and swollen	Soft and swollen
Pink	Red around margins	Darker in colour	Darker in colour
Do not bleed	Occasional bleeding	Bleed on pressure	Bleed on pressure
Stippled surface	Some stippling but some areas smooth	Smooth surface	Smooth surface
Little sign of plaque	Plaque present	Plaque present There may be: - deposits of calculus around teeth - loose teeth (due to bone loss) - bad breath	Plaque present There will be: - calculus around teeth - loose teeth (due to bone loss) - bad breath
TREATMENT			
To keep gums healthy and prevent disease, remove plaque daily by effective & thorough tooth-cleaning.	This stage can still be reversed by surface cleaning, removal of plaque and improved oral hygiene.	This stage can only be reversed by thorough deep cleaning, (root planing) requiring local anaesthetic. Good oral hygiene is critical.	This condition can only be controlled by deep cleaning, extractions where necessary and improved oral hygiene.

Brown pigmentation often occurs in the gums of dark skinned people. The extent of this is variable, it can be generalised or patchy, but is normal in terms of oral health.

See p. 44 for how to chart and record periodontal conditions.

Pregnancy and Periodontal Disease

Pregnancy causes hormonal changes so that bleeding and swollen gums are more commonly seen in expectant mothers. Extra vigilance and care need to be taken with oral hygiene and diet to ensure good health for both the mother and the developing child.

Risk Factors associated with Periodontal Disease

Smoking habits and Emotional Stress can both cause and aggravate the breakdown of gum tissue.

- HIV and AIDS affect the body's immune system and resistance to disease.
- Diabetes: Insulin Dependent Diabetes Mellitus in particular, can influence oral health especially if the condition is not well controlled.

Healthy Teeth need Healthy Gums

The gums hold everything in place and they deflect food and debris away from the teeth, into the mouth. They also act as a barrier to keep germs and infection away from the teeth. Healthy teeth and healthy gums go together – you can't have one without the other.

Examine your own Gums regularly

If you notice that they are red or swollen or if they bleed when you brush your teeth, these may be signs of periodontal disease and a visit to a dental worker is advisable.

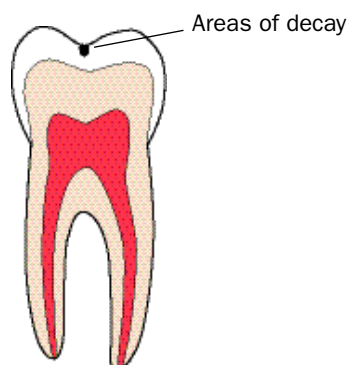
DENTAL CARIES

Tooth decay is the common name for dental caries. This develops as a result of sugars in the mouth being converted into acid by plaque bacteria. The acid then attacks the teeth. Decay can form on any surface but most commonly it occurs in the hollows and fissures on the biting surfaces of teeth and in between the teeth where food tends to collect allowing bacteria to flourish.

THE STAGES OF TOOTH DECAY

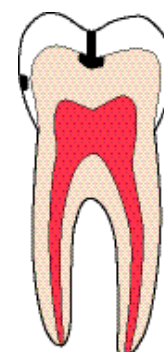
Stage 1

Sugar is converted to acid by plaque bacteria.



Stage 2

Acid eats into the enamel and decay begins inside the tooth. Early stage decay, appearing between teeth, is usually only detectable through radiographs.



ORAL HEALTH MANUAL

Stage 3

When decay reaches the soft pulp of the tooth, the nerve becomes affected and extremes of hot and cold will cause pain.

**Stage 4**

Infection can spread throughout the pulp resulting in the formation of an abscess. This is very painful and the tooth may need to be extracted.

**HOW TO PREVENT CARIES**

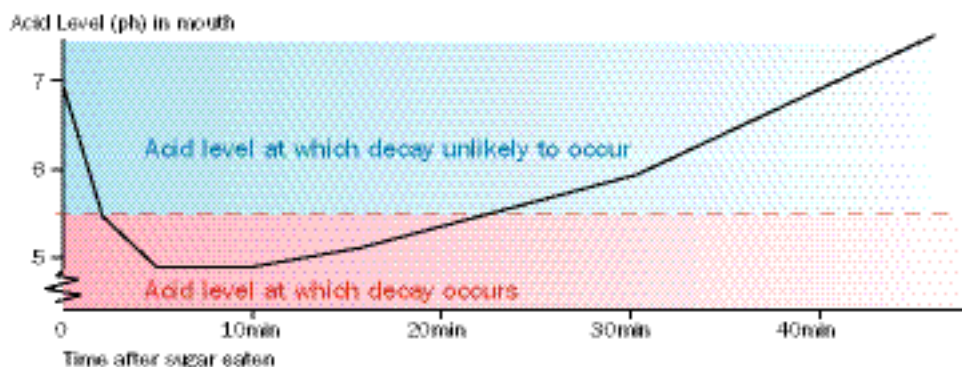
There are 3 main ways in which dental decay can be reduced or even completely avoided. In theory, because decay only occurs when bacteria act to convert sugar into acid, it could be prevented by:

- a) **Avoiding Sugar**
- b) **Increasing the Resistance of Teeth to Acid Attacks**
- c) **Removing the Bacteria**

a) Avoid Sugar

People who eat little or no sugar, rarely suffer from tooth decay and the rise of dental caries across many less developed countries is a relatively recent problem. In other countries, sugar is added to many foods e.g. cakes, confectionery, biscuits and soft drinks, making tooth decay more common.

Very little sugar is sufficient for bacterial conversion into acid. It happens within only one or two minutes and the acid can stay present within the mouth, at a critical level, for approximately half an hour. Natural sugar converts into acid more slowly than refined 'factory' sugar which is chemically altered during the manufacturing process.

HOW SUGAR INTAKE AFFECTS ACID LEVELS IN THE MOUTH

Stephan R.M. & Miller B.F.
1943

Most teeth can survive several mild acid attacks a day but frequently consuming foods that contain sugar will increase the severity of these attacks, gradually weakening the natural defences of the teeth.

It's not just the quantity of sugar eaten but the way in which it is consumed that matters most. Sticky foods such as cakes and biscuits will cling to the teeth for longer and sugared drinks coat the teeth, subjecting them to more acid.

If you are going to eat or drink sugar in different forms then try to do so as part of, or immediately after, a meal and restrict it to once a day. If a child has sweets, it's better for them to be eaten in one go than to be sucked on throughout the day.

b) Increase Resistance

Fluoride is a mineral that is naturally found in rocks, soil and water. It is a basic part of tooth enamel. According to the WHO Oral Health Unit, exposure to the correct amount of fluoride is the most effective measure that can be taken to prevent against dental caries and the use of fluoride toothpaste is a very effective way to deliver it.

It is important to know what levels of fluoride your community is accessing. Do you know the level of fluoride (if any) in your local water supply? Can you find out?

! WARNING !

Too much fluoride can be harmful so find out how much is in your water supply and your toothpaste. Check out this website for more information and for current recommended levels.

www.whocc-nijmegen.com

FLUORIDE IN WATER

Ensuring that the fluoride content of your water meets recommended levels is the most important oral health care step that can be taken for any community so put this at the top of your list. Difficulties can arise because of infrastructure, particularly in rural areas but they should not prevent this from becoming a future aim.

FLUORIDATED SALT

Where water fluoridation is not suitable, salt can be an effective alternative.

FLUORIDE IN TOOTHPASTE

Some governments still regard toothpaste as a cosmetic product, subjecting it to higher tax and making it unaffordable to many people. Every effort should be made to promote regular use of affordable fluoride toothpaste.

FLUORIDATED MILK

In some countries this has been successfully given to school children but problems can arise with storage and distribution.

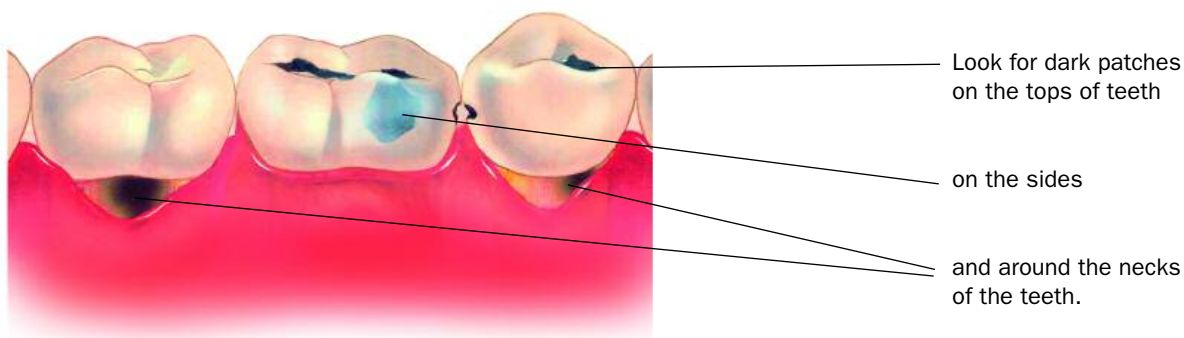
c) Remove Bacteria

Thorough brushing of the teeth will remove the majority of plaque from those parts of the teeth and gums that can be reached and this will help to prevent decay. Very few people though are able to brush their teeth so effectively as to remove every trace of plaque – so reducing the quantity and frequency of sugar intake remains a prevention priority.

HOW TO RECOGNISE DENTAL CARIES

As bacterial acid starts to erode the enamel surface of a tooth it may take some time before there are any visible signs of decay. Eventually a small hole will develop and this will continue to get bigger unless something is done to stop it. At this stage a dentist could remove the decayed part of the tooth (providing they have access to a dental drill) and place a filling in the hole. If the hole is left untreated it will get bigger and deeper until it invades the pulp chamber, affecting the nerve.

What to look for?



Symptoms

Early decay is usually painless while acid attacks the outer enamel surface of a tooth. Pain is felt as decay works through to the dentine. Pain increases as decay approaches the pulp.

At first, pain will only be felt with hot, cold, sweet and acid foods but later it will be felt all the time and will become severe. If the decay is left untreated it will eventually kill off the pulp – at this stage sensitivity may decrease – leaving the tooth susceptible to an abscess forming around the root.

The Symptoms of an Abscess are:

- The tooth hurts when it is tapped gently
- There may be some swelling in the mouth next to the tooth
- There may be swelling on that side of the face.



Abscess at base of root

TREATMENT OF DENTAL CARIES

The ideal treatment for dental caries involves taking radiographs, removing the decay using a compression drill and filling the cavity to restore the tooth. It is both specialised and costly.

Other methods can be used in situations or settings where this ideal is not possible.

If you are interested in the basic ART technique, then we advise you to seek further information via the web link below.

Later on, we outline the procedure for temporary fillings in case of an emergency (see p. 76) but we advise against regular 'drilling and filling' treatments until a good oral health care structure, focusing on prevention, is well established.

ATRAUMATIC RESTORATIVE TREATMENT (ART)

ART is a minimal intervention technique for caries, endorsed and promoted by the World Health Organisation.

The ART procedure is based on excavating and removing caries using hand instruments only and then restoring the tooth with an adhesive cement material called 'glass ionomer'.

For more information go to:

www.whocc-nijmegen.nl/art.htm