

---

## **Concepts of Oral Hygiene Maintenance that Would Apply for the Different Groups of Patients**

---

Maintaining good oral health is essential to maintaining good overall health. The goal of proper oral hygiene is to remove or prevent formation and buildup of plaque and tartar, to prevent dental caries and periodontal disease, and to decrease the incidence of halitosis. [1] Results of patient surveys demonstrate that many are unaware of the importance of practicing good oral hygiene and its connection to overall health. For example, results from a May 2012 survey conducted by the American Dental Association regarding oral health found that many people are not certain of basic information regarding proper dental care, recommended replacement time frame for toothbrushes, and causes of dental caries. In addition, new findings from the Centers for Disease Control and Prevention show that approximately 50% of people 30 years and older have some degree of periodontal disease. Routine oral health is important, but only an estimated 44.5% of people obtain professional dental care on a regular basis. Clinical studies have shown that those with poor oral hygiene are at increased risk of developing various oral health problems. Poor oral hygiene is directly responsible for increased incidence of dental caries, periodontal disease, halitosis, oral pain, and discomfort for denture wearers. In addition, some clinical studies have indicated an association between some oral cancers and poor dental and oral hygiene. [1]

---

### **1. Oral hygiene guidelines**

It is recommended that patients see their dentist and dental hygienist at least twice a year. However at home dental care is an integral part of maintaining good oral health. [2-4] Brushing with fluoride toothpaste is recommended at least twice a day to remove plaque and remnants of food and drink from teeth and gums. Flossing once a day is an essential practice to avoid gum disease and preventing tooth decay. [4-5] An oral rinse can also help promote good oral hygiene as it will reduce oral discomfort, provide moisture to oral tissues and help with bad breath. Additional therapeutic oral rinses can be anti-plaque, anti-cavity, anti-tarter, and anti-bacterial and are all good at preventing oral health problems. [2]

---

## 2. Over-the-counter preventive and therapeutic oral products

A range of products effective in treating a number of oral health diseases and meeting patients' desires are available in the marketplace. [6] Self-medication with over the counter medicines has long been a feature of the lay health system. Due to the existence of a wide variety of OTC dental products, now the public has access to treatments previously available only through the dentist. [6]

## 3. Toothbrushes

Mechanical cleaning of teeth and implants can be achieved with the use of a manual or electric toothbrush. [7, 8] The brush head should be worked over the tooth surfaces with light pressure (maximum 100 g). Toothbrushes with soft bristles are recommended because they cause less trauma to the gingiva and abrasion of the dental enamel. The dentist/dental hygienist must choose the ideal technique for the patient from the wide range of tooth-cleaning methods available and must practice and regularly check that technique. The tooth-cleaning routine should be carried out for 2–3 minutes twice a day. Mechanical tooth-cleaning should be avoided immediately after consumption of acidic drinks and foods to ensure that erosion of the dental enamel cannot take place. The American Dental Association recommends replacing a toothbrush every 3 to 4 months. [5, 8]





Toothbrushes are a critical part of biofilm removal. Toothbrushes, like the Colgate® 360° toothbrush, combine unique bristle design and rubber cups with a tongue cleaner to provide superior biofilm removal

### 3.1. Technique of toothbrushing

Several toothbrushing techniques have been proposed, such as vertical and horizontal scrubbing, the roll technique and the Bass technique. [9] The scrubbing technique, both vertically and horizontally, cleans convex surfaces well but plaque is left in the interdental region. Additionally, scrubbing can cause dental abrasion and gingival recession, unlike the gentler roll technique which does not. The roll technique involves placing the toothbrush against the side of the tooth with the bristles pointing apically, then gently sweeping the bristles downwards for maxillary teeth and up for the mandibular teeth. The shortcoming of this method is that it fails to clean the junction of the tooth with the gingival margin and the gingival crevice. The Bass technique superseded the roll technique owing to its superior cleaning of the gingival crevice. In this, the bristles of the toothbrush are held at about 45° to the long axis of the tooth, pointing towards the gingiva. The brush is pressed against the gingiva and moved with a small circular motion so that the bristles go into the crevice and between the teeth. This is currently the most effective method for the removal of plaque. Regardless of the technique used, it is the onus of the individual to ensure that brushing is undertaken systematically and that no areas of the dentition are overlooked. [9, 10]

#### 3.1.1. Children

Tooth-cleaning with a toothbrush, which should always have soft bristles in the case of children, should start with the eruption of the first primary tooth. A parent or caregiver should ideally perform the tooth-cleaning routine until the child is about 2-3 years old. Parents should

monitor brushing until such time that the child can demonstrate good brushing habits. The brush head should be small and can be modified as in the triple-head toothbrush so that the occlusal, inner and outer surfaces of the teeth can be cleaned at the same time. Electric or battery powered toothbrushes with a timer and the option of playing tunes are ideal motivation aids, encouraging children to brush for the recommended cleaning time of 2 min. [8]

### *3.1.2. Elderly and disabled patients, patients with limited motor skills and patients requiring care*

The use of an electric toothbrush is helpful for people who need support as it requires less effort for the individual or caregiver. These can be divided into rotary/oscillating toothbrushes and sonic toothbrushes. Sonic brushes remove soft bacterial deposits and slight discolorations gently and thoroughly. As a result of their hydrodynamic effect, they can also get rid of subgingival biofilm. If people with impaired fine motor skills use a manual toothbrush, the handle can be individually enlarged with the assistance of an occupational therapist or a physiotherapist. The toothbrush handle can be customized with plasticine material, making it easier to grip. The tooth-cleaning technique should be simple and practical. It can be performed efficiently in a short time with an (electric) triple-head toothbrush. [8, 10]

## **4. Oral hygiene at the bedside/patients during/after radiotherapy or chemotherapy**

If tooth-cleaning with a toothbrush is impossible, food particles and deposits on teeth, mucosa and tongue can be cleaned with a gauze pad, a swab stick or a foam tooth-brush (dental swab). If required, these can be dampened with mouthwash. However, some studies have demonstrated that toothbrushes are far superior to these aids in terms of cleaning the teeth and mucosa so that a toothbrush should be the method of choice whenever possible. The use of a soft (electric) toothbrush is recommended. [8]

## **5. Toothpastes**

The use of toothpaste is imperative for daily tooth-cleaning. Fluoride toothpastes typically contain the following ingredients:[6, 8]

- Fluorides (sodium fluoride, amine fluoride, sodium monofluoride) inhibit the loss of minerals, remineralize the dental enamel and reduce the formation of acid-forming plaque, which helps to prevent caries. Conventional fluoride toothpastes usually have a fluoride content of 0.15% (1,500 p.p.m.)
- Cleaning substances such as silicates, magnesium and calcium carbonate, aluminium oxides, sodium hydrogen carbonate or sodium hexametaphosphate ensure the mechanical removal of plaque and discolorations from the tooth surface. In order to avoid that the surface is mechanically damaged too harshly, toothpastes with a moderate or low relative

dentine abrasion value between 30 and 70 are recommended. Values over 100 are classified as strongly abrasive and should only be used in exceptional cases (thick deposits) not more than once a week

- Binding agents such as alginate or various types of cellulose act as stabilizers and thickening agents
- Foaming agents/surfactants, such as sodium lauryl sulphate, promote wetting of the tooth surfaces, help to spread the toothpaste evenly and loosen plaque. This improves the cleaning action even in hard-to-reach places
- Wetting agents such as glycerine, sorbitol or xylitol give the toothpaste its smoothness and protect it against drying out
- Flavoring agents (oil of peppermint, clove, aniseed or fennel; menthol, cinnamon)
- Preservatives (parabens)
- Sweeteners (aspartame, saccharine)
- Colorings (titanium oxide, patent blue, chlorophyllin, quinoline yellow)

Some toothpastes contain additives such as pyrophosphate or zinc citrate, which inhibit the mineralization of plaque, thereby delaying the formation of dental calculus (tartar). Potassium nitrate, strontium chloride, arginine/calcium carbonate and especially amine fluoride are used to protect sensitive necks of teeth. [8]

Triclosan along with a copolymer has been added to toothpaste to provide 12 hour antibacterial protection. A number of studies have been conducted that demonstrate the effectiveness of triclosan/copolymer in preventing plaque and gingivitis, tartar build up, retarding the progression of periodontal disease and reducing mucositis around dental implants. 6



Colgate® Total™ toothpaste combines the effectiveness of 1100 ppm fluoride with triclosan/copolymer for 12 hour protection against plaque and gingivitis, with additional benefits of tartar control, caries prevention and inhibition of oral malodor.

Fluoride gels have a considerably higher fluoride level of 1.25% (12,500 p.p.m.) than toothpastes and are used for intensive caries prevention. They are applied once a week with a toothbrush in addition to daily tooth-cleaning. [8]



Prescription level fluorides (5000 ppm) are recommended when caries control is critical. Some products have been specially formulated for patients with dentin hypersensitivity or dry mouth.

### 5.1. Children

Children should be introduced to tooth brushing with a pea-size amount of low-fluoride toothpaste at two years of age. [4] In children younger than two years, parental brushing without toothpaste is recommended. [4] After the age of six, children can safely use regular fluoridated toothpaste. [4, 8]

### 5.2. Bedridden patients

Non-foaming toothpastes (without sodium lauryl sulphate) should be used for patients who have no opportunity to rinse or spit out. Furthermore, unlike conventional toothpastes, these non-foaming pastes do not have a dehydrating effect on the oral mucosa, which is often a problem in elderly patients. [8]

### 5.3. Patients after radiotherapy/chemotherapy or with sensitive oral mucosa

To avoid mucosal irritation resulting from ingredients, toothpastes without menthol, cinnamon, peppermint oil and sodium lauryl sulphate should be used. [8]

As salivation is reduced because of radiotherapy, the caries-protective effect of saliva as an important factor in remineralization is diminished. Thermoformed splints should therefore be prepared before the start of radiotherapy. These are coated with fluoride gel 3 times a day, which is allowed to act on the teeth for 5 minutes. This procedure has to be followed throughout life because, without sufficient caries protection, the teeth rapidly develop deep caries and have to be extracted, which carries a risk of osteoradionecrosis. [8]

## 6. Interdental cleaning

Interdental spaces, which account for 40% of the tooth surface, are hard to reach by normal cleaning with a toothbrush. As a result, bacteria multiply there, leading to caries, gingivitis and periodontitis. Various aids are suitable for interdental cleaning, although their use should be adapted to the individual; patients should be taught how to use them and practice using them. Healthcare professionals should then check that the aids are being used correctly. [8]



The use of interdental brushes has been shown to greatly improve the removal of biofilm, food and other debris from the interproximal areas. Interdental brushes are very useful for those patients with fixed prosthodontics and implants.

### **6.1. Dental floss**

Dental floss is usually made of nylon thread or folded polytetrafluoroethylene strands. It is available as waxed or unwaxed dental floss. Where teeth are crowded, interdental cleaning is easier to manage with waxed than unwaxed floss. It is important to avoid applying too much pressure because this can damage the gingiva. [8]

Superfloss dental floss, as a development of conventional floss, is stiffened with plastic at one end and is easy to thread between the teeth. This stiffened end is then followed by a spongy nylon thread and unwaxed dental floss. This form of interdental tooth-cleaning is particularly suitable for patients with a fixed orthodontic appliance, with dental implants or bridgework. [8]

### **6.2. Interdental brushes**

Interdental brushes are made up of different lengths of nylon bristles arranged radially around a wire core. The wider the gaps between the teeth, the larger the diameter of the interdental brushes should be. If needed, the brushes can be placed in a holder for easier handling. The advantages of interdental brushes are their ease of use, the wide choice of sizes and differently shaped ergonomic handles or holders as well as their great effectiveness. These brushes should be worked through the interdental space, again without exerting too much pressure because that might injure the gums. This cleaning aid is suitable not only for patients with wide interdental spaces, a fixed orthodontic appliance or a dental prosthesis (dental implants, bridges) but also for manually impaired patients. Cleaning should be done without toothpaste in order to avoid mechanical trauma to any root surfaces that may be exposed. [8]

### **6.3. Dental sticks**

These have a triangular shape that matches the interdental space and are suitable for removing food particles and plaque. They are straightforward to use. It is proven that plaque removal is more thorough if toothbrushes plus interdental brushes are used than if the teeth are merely cleaned with a toothbrush. Dental floss or sticks remove plaque less effectively than interdental brushes. Gingival bleeding as well as the depth of periodontal pockets are reduced more markedly after interdental brushes are used than after the use of dental floss. Plaque-induced interdental gingival inflammation declines when dental sticks are employed. [8]

### **6.4. Children**

Flossing in toddlers is valuable for caries prevention and should be commenced as soon as primary teeth establish proximal contacts. At this time, the incidence of proximal caries and gingivitis increases significantly. Manual dexterity and training are needed for effective flossing and since this is not expected of children under 8, parents should floss for young children. Floss incorporating sodium or amine fluoride can promote fluoride uptake in vitro by molar proximal surfaces and demineralized primary enamel. [11]



## 6.5. Elderly and disabled patients: patients with limited motor skills and patients requiring

### 6.5.1. Care

Electric dental floss attachments can be used for interdental cleaning to compensate for a decline or lack of fine motor skills. These are supplied as an accessory with the new generation of electric toothbrushes. Vibration of the fixed plastic thread simplifies cleaning of the interdental spaces, although improper use does carry a certain risk of injury. [8]

### 6.5.2. Patients during chemotherapy

Owing to the possible risk of injury from using dental floss, interdental cleaning with dental floss should be avoided during this phase because of the lower platelet count and the resulting increase in the tendency to bleed. [8]

## 7. Mouthwashes

### 7.1. Antiseptic products

Mouthwashes reduce the quantity of bacteria in the mouth, inhibit the growth of bacteria in plaque and thereby prevent gingivitis and periodontitis. Chlorhexidine, cetylpyridinium chloride, amine fluoride, zinc fluoride, triclosan and essential oils are ingredients with a clinically proven action. [8]



Over the counter mouthrinses with CPC have been proven very effective as adjuncts in oral hygiene and biofilm control after toothbrushing.

Chlorhexidine remains one of the most effective antimicrobial mouthwashes because it acts not only against gram-negative bacteria, but also against yeasts and gram-positive bacteria. It is particularly suitable for the inhibition of plaque formation as it has the ability to maintain

effective concentrations for prolonged periods of time, by way of binding to soft and hard tissues. [9] However, longer-lasting rinses with chlorhexidine can cause discoloration of teeth and tongue, increased tartar formation, transient changes in the sense of taste and altered oral flora. [8, 9]

## 7.2. Fluoride mouthwashes

Mouthwashes containing fluoride enhance the protection against caries by increasing the fluoride reserve built up by toothpaste. Furthermore they also act in the interdental spaces that cannot be reached by the toothbrush. [8]

### 7.2.1. Mouthwashes with added ingredients

Amine fluoride, arginine calcium chloride or stannous fluoride reduce pain sensitivity. In the process they act on dentine permeability and have anti-erosive effects on the enamel. [8]

### 7.2.2. Mouthwashes for wetting

The causes of dry mouth are many and varied. They can be divided into iatrogenic causes, diseases affecting the salivary glands and dehydration. Treatment of xerostomia and hyposalivation is very often purely symptomatic and aims to bring subjective relief of dry mouth and improve lubricating ability. In addition, the hard dental substances need to be protected against demineralization. Mucin, carboxymethylcellulose and hydroxymethylcellulose, xanthan, linseed oil and polyethylene oxide are used with the aim of improving viscosity and wettability. Immunologically active ingredients have recently come onto the market, although their mechanisms are still not fully explained. [8]

Rinses for wetting the oral mucosa are mainly used in the elderly population and for patients who have undergone radiotherapy and chemotherapy, but also in rheumatic-type diseases. [8]

### 7.2.3. Children

Mouthwashes are only recommended after the age of 6 because of the risk of swallowing. [4, 8]

### 7.2.4. Elderly patients

The cause of dry mouth in elderly frequently lie in the (multiple) medication they take, which can often result in drug-induced xerostomia as a side effect of those medicines. The xerostomia can be minimized by a reduction of the daily dose or by a change of active substance. [8]

## 8. Oral hygiene at the bedside

If patients are at all able to rinse and spit out, an antibacterial rinse can be beneficial. [Lindenmuller/p107/col...] [this one has a reference too] However, mouthwashes containing chlorhexidine cannot be used as a long-term measure because of their side effects. Therefore

switching to rinses based on amine or stannous fluoride is an option. These may have an additional positive effect on fungal colonization. [8]

The fact that, in addition to their antibacterial action, some amine and stannous fluorides have an antifungal effect and display additional antiresorptive and desensitizing properties might be beneficial for elderly patients who are at higher risk of fungal infection, caries and sensitive necks of teeth because of increasing morbidity and insufficient oral hygiene. [8]

### **8.1. Patients during/after radiotherapy or chemotherapy**

Mouthwashes containing alcohol and chlorhexidine should be avoided because of the sensitive oral mucosa experienced during/after radiotherapy or chemotherapy, which is often affected by mucositis. Instead an easy-to-make and inexpensive salt-and-soda solution or rinsing with 0.5% lignocaine is favored in cases of chemotherapy-induced mucositis because, in comparison with a 0.12% chlorhexidine solution, no difference has been found in terms of symptoms and time to resolution of mucositis. According to the guidelines of the Multinational Association for Supportive Care in Cancer/International Society for Oral Oncology, as well as effective oral hygiene, a saline or sodium bicarbonate rinse but not chlorhexidine solution should be used. They argue for topical application of benzydamine (Bucco-Tantum®), which has an anti-inflammatory, analgesic and antimicrobial effect. [8]

Following cancer treatment, patients develop transient or persistent xerostomia and hyposalivation. This arises from the reduced quantity of saliva caused by damage to the parenchyma of the salivary glands resulting from exposure to radiation. This in turn leads to worsening of existing tissue inflammation and an increased risk of infection. Chewing and swallowing are made more difficult by the increased viscosity of the saliva. In addition, burning sensations in the tongue and mouth, bad breath, speech disorders, taste disturbances, poor denture grip and resulting ulcerations of the mucosa, caries and oral thrush may occur. [8]

## **9. Tongue-cleaning**

In order to reduce micro-organisms and avoid halitosis, daily cleaning of the surface of the tongue should also be incorporated into dental and oral hygiene. The cleaning action of tongue scrapers is superior to that of a toothbrush. Mouthwashes can also be used temporarily in addition to mechanical tongue-cleaning. However, these should contain scientifically proven ingredients such as chlorhexidine, cetylpyridinium chloride, chlorine dioxide, zinc, hydrogen peroxide, triclosan, zinc chloride, amine fluoride, stannous fluoride or essential oils (Listerine™). [8]

## **10. Chewing gums**

The use of sugar-free chewing gum as a mechanical salivary stimulant after eating can accelerate the clearance of dietary substances and microorganisms, promote buffers to

neutralize plaque acids and provide antibacterial substances. [11, 12] Chewing sugar-free gum for 20 minutes after eating reduces the fall in plaque pH and rapid recovery ensues. This action reduces the time for demineralization and enhances the potential for remineralization of early carious lesions. The saliva flow rate is stimulated three- to tenfold above the resting level and may be prolonged for over 30 minutes. [11, 12]

This approach may enhance saliva function in those with low flow rates such as elderly sufferers of xerostomia or provide symptomatic relief from dry mouth. However, effects on gingivitis or calculus formation have not been demonstrated. [11]

## **11. Care of complete or partial dentures**

As bacteria, fungi, plaque and tartar can become deposited on removable dentures, these must be taken out after every meal and cleared of food remnants under running water. Denture wearers should also rinse their mouths with water. Furthermore, the oral mucosa covered by the denture, including the palate, should be cleaned at least once a day with a soft toothbrush in order to get rid of remnants of adhesives as well as micro-organisms and food particles. Mechanical denture-cleaning is also done once a day under running water with the aid of a denture brush without toothpaste. Thorough working of the occlusal surface as well as the inside and outside surfaces of the denture is required. [8]

### **11.1. Patients during/after radiotherapy or chemotherapy**

Dentures must not be worn if patients have ulcerations or neutropenia, except while eating. Non-fixed appliances should be removed before the mouth is rinsed with a recommended cleansing agent. [8]

### **11.2. Supportive periodontal therapy**

With at-risk patients, self-care becomes a key behavior in long-term periodontal health maintenance. [13] Inadequate control of bacterial plaque by the patient predisposes the patient to disease recurrence. [13] Therefore, self-care must focus on decreasing the bacterial load daily to prevent the re-establishment of a pathogenic microflora. [13] This can be accomplished by the motivated individual using a variety of oral cleaning devices. [13] Interdental cleaning devices should be recommended and used routinely based upon the type of embrasure spaces present in the patient's mouth. [13]

## **12. Dry mouth (xerostomia)**

Dry mouth (xerostomia) is a complaint that is the most common salivary problem and is the subjective sense of dryness which may be due to reduced salivary flow (hyposalivation) and/or changed salivary composition. [14, 15]

### 12.1. Causes

Medications are the most common cause of dry mouth. More than 400 medications (prescribed and over-the-counter) list dry mouth as a potential adverse effect. Among them are antihistamines, decongestants, painkillers, diuretics, high blood pressure medications, muscle relaxants, drugs for urinary incontinence, Parkinson's disease medications, antidepressants and many others. [16]

Dry mouth can be caused by other factors, such as emotional stress, anxiety disorders, radiation treatment for head and neck cancers, salivary gland disease, endocrine disorders, diabetes, Parkinson's disease, Alzheimer's disease, stroke, AIDS and Sjögren's syndrome. Hormone changes that take place during pregnancy or menopause also have been associated with dry mouth. Snoring or breathing with an open mouth can contribute to dry mouth. [14, 16]

Drying irritates the soft tissues in the mouth, which can make them inflamed and more susceptible to infection. Without the cleansing effects of saliva, tooth decay and other oral health problems become much more common. [16]

Very rarely, children are born missing salivary glands — so-called salivary gland aplasia or agenesis. Most salivary gland dysfunction however is acquired (Table 1). [14]

### 12.2. Clinical features

Common symptoms of dry mouth include:[16, 17]

- A sticky, dry feeling in the mouth or throat
- Limited saliva that seems thick or stringy
- A burning sensation in the mouth
- Trouble in chewing, swallowing or speaking
- An altered sense of taste
- A rough, dry tongue
- Cracked lips, sores or split skin at the corners of the mouth
- An infection in the mouth
- Increased plaque (a thin film of bacteria), tooth decay and gum disease
- Bad breath

Additionally, patients with hyposalivation may have difficulty in: controlling dentures. The patient with hyposalivation may complain of a dry mouth or these sequelae alone, or also complain of dryness of the eyes and other mucosae (nasal, laryngeal, genital). Those with eye complaints have blurring, light intolerance, burning, itching or grittiness, and sometimes an inability to cry. Systemic features such as joint pains may be suggestive of Sjogren's syndrome. Complications of hyposalivation can include dental caries, candidosis, halitosis, and ascending sialadenitis. [14]

### 12.3. Manage symptoms [17]

- Local treatments: simple measures include sucking on pineapple slices, frequent sips of cold orange squash or semifrozen fruit juice, and sugar-free chewing gum.
- Artificial saliva: sprays, lozenges, and gels to use before meals
- Patients with their own teeth can use saliva preparations containing fluoride. Gel preparations are useful for overnight use as they last longer.
- Cracked lips can be very sore—treat with petroleum jelly.
- Pilocarpine (for systemic saliva stimulation) is sometimes used after radiotherapy and to treat the symptoms of Sjögren’s syndrome, but it can have considerable side effects.
- Lemon juice should be avoided as it depletes the salivary glands of saliva.
- Dry mouth is associated with dental caries, so referral to a dentist may be required.

### 12.4. Management of hyposalivation

Any underlying cause of xerostomia should if possible be rectified; for example, xerostomia-producing drugs may be changed for an alternative, and causes such as diabetes should be treated. Patients should be educated into efforts to avoid factors that may increase dryness, and to keep the mouth moist. [14]

Salivary substitutes may help symptomatically. A variety are available including: water or ice chips; frequent sips of water are generally effective, synthetic salivary substitutes (Table2). [14]

As patients with objective xerostomia are at increased risk of developing caries it is important that they take a non-cariogenic diet and maintain a high standard of oral hygiene. The regular use of topical fluoride agents forms an important component of their long-term care. [14]

Salivation may be stimulated by using diabetic sweets or chewing gums (containing sorbitol or xylitol, not sucrose). Cholinergic drugs that stimulate salivation (sialogogues), such as pilocarpine, or cevimeline should be used only by a specialist. Oral complications should be prevented and treated. [14]

<b>Iatrogenic</b>	Drugs
	Irradiation
	Graft versus host disease
<b>Disease</b>	Dehydration
	Psychogenic
	Salivary gland disease
	Sjogren’s syndrome
	Sarcoidosis
	Salivary aplasia

**Table 1.** Causes of dry mouth [14]

---

Rinse with water after meals.

Keep water at bedside.

Replace missing saliva with salivary substitutes, eg Artificial Saliva, (Glandosane, Luborant, Biotene Oralbalance, AS Saliva Orthana, Salivace, Saliveze).

Alcohol-free mouthrinses (BioXtra and Biotène), or moisturising gels (Oralbalance, BioXtra) may help.

Stimulate saliva with:

- sugar-free chewing gums (eg EnDeKay, Orbit, Biotène dry mouth gum or BioXtra chewing gum) or
- diabetic sweets or
- Salivix or SST if advised or
- drugs that stimulate salivation (eg pilocarpine [Salagen]) if advised by a specialist.

Always take water or non-alcoholic drinks with meals and avoid dry or hard crunchy foods such as biscuits, or dunk in liquids.

Take small bites and eat slowly.

Eat soft creamy foods (casseroles, soups), or cool foods with a high liquid content — melon, grapes, or ice cream.

Moisten foods with gravies, sauces, extra oil, margarine, salad dressings, sour cream, mayonnaise or yogurt.

Pineapple has an enzyme that helps clean the mouth.

Avoid spices.

Avoid anything that may worsen dryness, such as:

- drugs, unless they are essential (eg antidepressants)
- alcohol (including in mouthwashes)
- smoking
- caffeine (coffee, some drinks such as colas)
- mouth breathing.

Protect against dental caries by avoiding sugary foods/drinks and by:

- reducing sugar intake (avoid snacking and eating last thing at night)
- avoiding sticky foods such as toffee
- keeping mouth very clean (twice daily toothbrushing and flossing)
- using a fluoride toothpaste
- using fluoride gels or mouthwashes (0.05% fluoride) daily before going to bed
- having regular dental checks.

Protect against thrush, gum problems and halitosis by:

- keeping mouth very clean
- keeping mouth as moist as possible
- rinsing twice daily with chlorhexidine (eg Chlorohex, Corsodyl, Eludril) or triclosan (eg Plax)
- brushing or scraping your tongue
- keeping dentures out at night
- disinfecting dentures in hypochlorite (eg Milton, Dental)
- using antifungals if recommended by specialist.

Protect the lips with a lip salve or petroleum jelly (eg Vaseline).

Avoid hot dry environments — consider a humidifier for the bedroom.

---

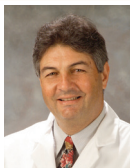
**Table 2. Tips for managing a dry mouth** [14] Drink enough water, and sip on water and other non-sugary fluids throughout the day.

## Additional reading

- [1] <http://www.pharmacytimes.com/publications/issue/2013/March2013/> Benefits-of-Good-Oral-Hygiene. Accessed March 15, 2013.
- [2] <http://www.acedentalresource.com/dental-procedures/oral-hygiene/para1>. Accessed March 15, 2013.
- [3] Sgan-Cohen H D. Oral hygiene: past history and future recommendations. *Int J Dent Hygiene* 2005;3:54–58.
- [4] Nguyen D H, Matrin J T. Common Dental Infections in the Primary Care Setting. *Am Fam Physician*. 2008;77(5):797-802, 806.
- [5] No authors listed. Patient's page. Dental products for home use. *J Okla Dent Assoc*. 2011 Jan;102(1):7.
- [6] Maltz M. Over-the-counter preventive and therapeutic oral products. *Braz Oral Res* 2009;23(Spec Iss 1):4-7.
- [7] Jahn CA. Automated oral hygiene self-care devices: making evidence-based choices to improve client outcomes. *J Dent Hyg* 2001 Spring; 75(2):171-186.
- [8] Lindenmuller H, Lambrecht JT. Oral care. *Curr Probl Dermatol*. 2011;40:107-115.
- [9] Laing E. An Update on Oral Hygiene Products and Techniques. *Dent Update* 2008;35:270-279.
- [10] Chandu A, Stulner C, Bridgeman A M, Smith A C H. Maintenance of mouth hygiene in patients with oral cancer in the immediate post-operative period. *Australian Dental Journal* 2002;47(2):170-173.
- [11] Choo A, Delac DM, Messer LB. Oral hygiene measures and promotion: Review and considerations. *Australian Dental Journal* 2001;46(3):166-173.
- [12] Brading MG, Marsh PD. The oral environment: the challenge for antimicrobials in oral care products. *Int Dent J* 2003;53(6Suppl1):353-362.
- [13] Darby M. Can we successfully maintain risk patients? *Int J Dent Hygiene* 2003;1: 9–15.
- [14] Scully C, Felix DH. Oral Medicine- Update for the dental practitioner. Dry mouth and disorders of salivation. *British Dental Journal* 2005;199:423-427.
- [15] No authors listed. Oral moisturizers Products that can help relieve dry mouth. *The Journal of the American Dental Association* July 2007;138(7):1044.
- [16] No authors listed. Dealing with dry mouth. *The Journal of the American Dental Association* May 2005;136(5):703.
- [17] Taubert M, Davies EM, Back I. Dry mouth. *BMJ* 2007;334:534.



# DIAGNOSIS AND MANAGEMENT OF ORAL LESIONS AND CONDITIONS: A RESOURCE HANDBOOK FOR THE CLINICIAN



## **Cesar A. Migliorati, Editor**

Cesar A. Migliorati graduated from the University of Sao Paulo (USP), Brazil in 1972. He completed a Master's Degree in Stomatology from USP in 1978, a Certificate in Oral Medicine and a Master's Degree in Oral Biology from the University of California San Francisco (UCSF) in March of 1984. Dr. Migliorati is board certified by the American Board of Oral Medicine (ABOM). He held teaching positions at the University of Sao Paulo, University of California San Francisco, University of Florida Gainesville, and University of Zurich. He completed his PhD in HIV, antiretroviral therapy and oral candidiasis at USP in 2002. Dr. Migliorati has worked in oral medicine for the past 22 years in teaching, research and patient care. He was one of the pioneers in the diagnosis and management of oral manifestations HIV infection and AIDS and osteonecrosis of the jaw (ONJ). His work included oral inflammatory diseases and infections, oral precancer and cancer, and oral complications of cancer therapy. He serves as a member of the ABOM.



## **Fotinos S. Panagakos, Co-Editor**

Dr. Panagakos received his DMD from UMDNJ-New Jersey Dental School and his PhD in Biochemistry and Molecular Biology from UMDNJ-Graduate School of Biomedical Sciences in 1992. In 1999, he received his Masters in Education from Seton Hall University and in 2007 he received his Master's in Business Administration from Lehigh University. Dr. Panagakos served for 14 years as a faculty member at New Jersey Dental School, serving in a number of administrative positions, including Group Practice Administrator, Director of Environmental Safety and Associate Dean of Academic Affairs. During this time, he also maintained a private practice in Westfield and Newark, NJ. In June, 2005, Dr. Panagakos joined the Colgate Palmolive Oral Care Clinical Research Department as an Associate Director. In January, 2006, Dr. Panagakos was promoted to Director of Professional Relations and Scientific Affairs – North America. In April 2009, Dr. Panagakos was appointed Director of Clinical Research Relations and Strategy within the Research and Development division of Colgate-Palmolive Co. In November, 2012, he was promoted to Global Director of Scientific Affairs and Research Relations, and is based at the Global Research and Development Center in Piscataway, NJ.

**INTECH**  
open science | open minds

ISBN 978-953-51-1219-8

