Spotlight: Interproximal Plaque Removal

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Introduction

The removal of plaque from the interproximal areas is an essential but often neglected part of the oral hygiene regime. Bacterial plaque forms as readily in the interproximal areas as it does on other parts of the tooth’s surface. If left undisturbed, the interproximal plaque will increase the risk of dental caries and periodontal disease. It has recently been demonstrated that regular interproximal plaque removal is associated with less plaque and calculus formation, reduced levels of gingivitis and lower periodontal pocketing.1 This article considers the various methods for removing interdental plaque.

Tooth Brushing

Many toothbrushes, especially some of the newer designed powered toothbrushes, have a greater ability to access the interproximal sites than previous toothbrush models. However, their efficacy at removing plaque from such sites will be dependent upon the presence of any restorations and the extent and severity of periodontal disease. Restorations, especially if they have poor margins, will act as a plaque trap and this will hinder mechanical plaque removal. Likewise with periodontal disease, the loss of interproximal tissues will allow greater access to this area for other devices. Some of these may be easier for the patient to use.

For manual toothbrushes, the design and shape of the bristles may have an effect on interproximal plaque removal. Laboratory studies have shown that brushes with extended bristles should be more effective for cleaning in between the teeth when compared to other types of brush head designs.2

There are now many different types of powered toothbrushes available to the public. Such brushes possess different modes of action. Again laboratory studies have demonstrated that a brush head whose mode of action drives fluid deep between the teeth and gum line is more effective at reaching interproximal sites than a brush with an oscillating action.3 Clinical studies have also demonstrated superior interproximal bacterial removal from the so-called sonic brushes over brushes with an oscillating action.4 Further comparative studies will hopefully demonstrate which is the most effective powered brush for the removal of interproximal plaque.

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**Toothpicks**
A variety of products are available for patient use to clean between the teeth. They come under the generic name of toothpicks. Such devices are made from a range of materials and are either triangular or round in shape. Despite their widespread availability, there have been few studies to evaluate their effectiveness in the removal of interproximal plaque. However, it has been shown that toothpicks are effective in removing plaque from the interdental spaces, but the shape (rounded versus triangular) is not important.\(^5\)

**Dental Floss**
There has been much debate over the use of dental floss as a means of reducing caries and periodontal disease. A recent Cochrane review\(^6\) reported that people who brush and floss regularly have less gum bleeding compared to tooth brushing alone. However, this review only considered 12 randomised controlled studies. Seven of these showed a benefit and the remaining five provided uncertain evidence. These studies also focused upon gingivitis. Whilst flossing may have some benefit, the issue appears to be one of compliance and patient preference. It has been shown that patients prefer interdental brushes for plaque removal over dental floss.\(^7,8\)

There are various types of floss now available. These include waxed, unwaxed, “super floss” and dental tape. There does not appear to be a significant difference between the different types of floss regarding interproximal plaque removal.\(^8,10,11\) Dental tape does appear to be preferred over other types of floss for interdental cleaning and this may be a reflection upon ease of use.\(^12\)

**Antiseptic Mouthwashes**
It is well established that antiseptic mouthwashes have a role to play in plaque control. Three widely used products, Chlorhexidine, Cetylpyridinium chloride and essential oil containing mouthwashes have all been compared with dental flossing for their ability to reduce interproximal plaque.\(^13\) All three studies showed that when an antiseptic mouthwash was used as an adjunct with twice daily tooth brushing, interproximal plaque control was superior to brushing and flossing alone. These studies indicate that regular use of an antiseptic mouthwash, preferably alcohol free, will provide additional benefits in terms of plaque control, especially for those who find flossing difficult or who are unable to cope with regular use of an interproximal cleaning aid.

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FACTS & STATS:

Dentyl Active®
Shake it. See it. Feel it.®

The Dentyl Active range of mouthwashes have an innovative, advanced formula with a distinctive working action and have the ability to reduce plaque levels after brushing.

Dentyl Active® is a scientifically proven formula that can further reduce plaque by up to 25% after brushing the teeth while removing food debris from the mouth.

It contains the scientifically proven antibacterial agent Cetylpyridinium chloride and kills up to 99.9% of oral bacteria while efficiently removing bacterial layers from the teeth and tongue, leaving the mouth feeling fresh and clean.

Dentyl Active mouthwashes consist of two phases, a water-based phase incorporating a special antibacterial agent (Cetylpyridinium chloride - CPC), and an oil-based phase with natural essential oils, that have to be shaken together well before use. This action combines the two phases and creates a dynamic solution which is more powerful than the two individual parts. The bacteria and debris adhere to the formula and when rinsed out patients see the bacteria, food debris and other deposits on the teeth removed and highlighted as small, brightly coloured masses in the sink, proving that Dentyl Active really works. The antibacterial ingredient (CPC) in Dentyl Active, also helps stop bacteria from working.14

The Dentyl Active® range is:
- scientifically proven
- alcohol free
- helps fight plaque bacteria
- helps maintain healthy gums
- kills up to 99.9% oral bacteria
- contains fluoride
- tastes great and does not sting or dry the mouth
- long-lasting fresh breath

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14 Enhanced Antibacterial Activity of Cetylpyridinium chloride in Oil: Water Mixtures; O. Ilan and M. Rosenberg; Tel-Aviv University, Israel; Journal of Dental Research 75 (5) 1996.
Summary

There has been much interest in methods used to improve interproximal plaque removal. Tooth brush head design, powered toothbrushes and their mode of action all impact upon their efficacy to remove plaque from the interproximal areas. For many years, dental floss has been considered the “gold standard” for interproximal plaque removal. However, there continues to be an issue with compliance with the regular use of dental floss and this is reflected in patient’s preferences. There is emerging evidence that antiseptic mouthwashes, especially those with Cetylpyridinium chloride, also have a role to play in either reducing or inhibiting interproximal plaque. Alcohol free versions should be recommended due to the drying effects and other health issues related to alcohol containing mouthwashes. Dentists and other members of the dental team need to ensure that their patients remove plaque from the interproximal tooth surfaces and provide advice on the best method to complete this process as part of their regular oral hygiene regime. What is recommended may well have to be tailored to each individual patient and take into account their dexterity and compliance. Good interproximal plaque control is essential to maintain good oral health.

DID YOU KNOW?

The Dentyl Active® range of mouthwashes provide patients with a variety of mouthwash options, all aimed at reducing plaque. The range consists of:

- **Dentyl Active® Plaque Fighter™** – available in Smooth Mint, Fresh Clove and Minty Citrus flavours. Plaque Fighter contains two antibacterial agents – CPC and Peppermint oil\(^{16}\) – to destroy bacteria, especially plaque-forming bacteria, and provide long lasting fresh breath.
  
  Contains 0.05% (225 ppm) fluoride.

- **Dentyl Active® Complete Care™** – available in Icy Fresh Mint and Icy Fresh Cherry flavours, works in six active ways, leaving users with a ‘professional clean’ feeling and fresh breath for up to 18 hours.\(^{17}\) Dentyl Active Complete Care contains 0.05% (225 ppm) fluoride.

- **Dentyl Active® Ultra Cleanse™** – available in Fresh Mint, contains bicarbonate of soda to help neutralise plaque acids; ensures a deep clean and leaves the mouth feeling deeply cleansed and extra fresh.
  
  Contains 0.05% (225 ppm) fluoride.

- **Dentyl Active® Enamel Restore™** – available in Icy Fresh Mint, contains double the fluoride level of other leading brands (within recommendations) 452 ppm. This, along with its exhilarating flavour, means that Dentyl Active Enamel Restore will:
  
  • Help strengthen tooth enamel by replacing lost minerals
  
  • Help protect against acid erosion\(^{18}\)
  
  • Help tooth enamel become more resistant to acid attack.

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\(^{17}\) Enhanced Antibacterial Activity of Cetylpyridinium chloride in Oil: Water Mixtures; O.Ilan and M.Rosenberg;Tel-Aviv University, Israel; Journal of Dental Research 75 (5) 1996.

\(^{18}\) Reference on file.