

## Toothbrushes and toothbrushing

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Toothbrushing is such a familiar process that it is easy to forget how crucial it is to oral health and how important it is to brush properly. This factfile answers questions about how long and how often we should brush. It also looks at toothbrushing technique, brush specifications and electric toothbrushes.

### Why do we brush our teeth?

Plaque is a sticky deposit of bacteria on the tooth surface, which can cause gingival inflammation (gum disease) and dental decay. Toothbrushing helps to remove plaque. Toothbrushing alone will not remove all the plaque, so you should still visit the dentist regularly for professional cleaning. In addition, brushing with a fluoride toothpaste will help strengthen teeth and reduce the incidence of dental decay.

### How often should we brush our teeth?

Dentists recommend twice daily thorough brushing with a fluoride toothpaste. Women brush more frequently than men - 76% of women brush their teeth at least twice a day compared with 58% of men<sup>1</sup>.

### How should adults brush?

The most effective way of removing plaque from the tooth's surface is by using the gentle scrub method. Place the brush at the neck of the tooth where it meets the gum and use very short horizontal movements, at a 45° angle, to dislodge plaque. The brush can be held in a pen-like grip to avoid excessive force. If toothbrushing is unhurried then every surface can be cleaned thoroughly and systematically<sup>2</sup>. If you have partial dentures these need to be removed before brushing and cleaned separately.

### How should children brush?

Children may find it difficult to brush effectively until they are at least six or seven. Parents or carers are advised to help small children with toothbrushing. One method commonly used is for the adult to stand behind the child and tilt the child's head upwards so that all tooth surfaces can be brushed using the gentle scrub method described above<sup>2</sup>.

### How should a baby's first teeth be cleaned?

Toothbrushing needs to be introduced as soon as the first teeth appear. If a baby resists brushing use a clean piece of moist gauze with a tiny spot of fluoride toothpaste, to wipe the teeth. By the age of two, though, an infant toothbrush ought to be used, with twice daily brushing<sup>3</sup>. The BDA's fluoride toothpaste factfile gives advice about which toothpaste to use.

### Should toothbrushes be shared?

No. Studies have shown that bacteria and viruses can live on a toothbrush, so there is a risk of infection moving from person to person if a brush is shared<sup>4</sup>.

### How big should a toothbrush head be?

Dentists recommend that a small headed toothbrush is best for children, so that it will reach all areas of the mouth without difficulty. Also, for a firm and comfortable grip, it is best to buy a toothbrush with a large handle, as this will allow the child to manoeuvre the brush easily around the mouth. Adults should also use a small headed brush. Some people think that the bigger the brush the better, but if the brush head is large it makes it harder to reach all the tooth surfaces effectively.

There is little evidence at present to support any specific toothbrush shape or design. However, it is sensible to buy a brush from one of the companies well known for oral care products, because these companies carry out research on their products and are constantly trying to improve them.

### What type of bristles should a toothbrush have?

Dentists advise soft to medium textured, round-ended, synthetic bristles (also known as filaments). Some people believe that if they use a hard-bristled brush it will clean their teeth more effectively, but hard bristles can damage teeth and gums and are not recommended. Bristle stiffness is measurable. The international standard ISO:8627:1987 defines an index stiffness from 1 to 9 - soft to medium brushes are in the range 1 to 6.

Round-ended bristles are also recommended, because they cause less damage to the gums than angular-ended bristles. For hygiene, bristles should

be synthetic rather than made from natural materials which are porous and may absorb bacteria. The first toothbrush, developed in 1780, had hog bristles. Toothbrushes have come a long way since then and most are now made from synthetic materials.

### **Can you brush too hard?**

If there is a faulty brushing technique - for example, using a brush which is too old or too hard or brushing too aggressively, this can damage teeth through 'toothbrush abrasion'. Strictly, the damage is caused by the abrasive agents in toothpaste, but the solution usually advised by dentists is a change of brushing method rather than a change of toothpaste. There is an international standard for toothpaste abrasivity (ISO:11609:1995) and family toothpastes on general sale in the UK are within this limit. If toothbrush abrasion produces sensitivity at the neck of the tooth, though, dentists may recommend use of a desensitising toothpaste, which contains desensitising agents (strontium acetate hemihydrate or potassium chloride, for example). Low abrasivity toothpaste is desirable if there is exposed dentine.

### **How often should you change your brush?**

Brushes become less effective at plaque removal when the bristles are deformed and should be replaced when this happens. Bristles which are only slightly deformed because they have naturally taken on the shape of the teeth should still be effective, though. Bristles wear differently from person to person, depending on how vigorously teeth are brushed and how much pressure is applied. As a rough guide, a toothbrush should be changed about every three months, although dentists may sometimes recommend that patients with gum disease replace toothbrushes more often.

### **Are electric toothbrushes better than manual toothbrushes?**

There is some evidence that electric toothbrushes are more effective at removing plaque than manual ones. However, the study showing this gave users strict instructions on how to use the electric toothbrush and monitored use closely. Long-term research which allows for users' own interpretation of the instructions is needed<sup>5</sup>.

Electric toothbrushes can be a useful aid for people with manual dexterity problems, because of arthritis or disability. They can also be helpful for people with fixed orthodontic appliances. They may not be any help for patients who can remove plaque effectively with a manual brush, so ask your hygienist or dentist for advice before purchasing an electric toothbrush and for guidance on use.

### **Are all electric toothbrushes the same?**

No. Features and prices vary considerably - there are round and rectangular headed brushes, different rotational systems, and cordless chargeable models, as well as battery powered ones.

### **Are there any guidelines about choosing an electric toothbrush?**

Yes. As for manual brushes look for brushes which are small headed, with soft to medium, rounded, synthetic bristles. Also, remember not to share electric toothbrush heads.

Always follow the manufacturers' instructions for use, paying close attention to:

- how long you should brush your teeth
- how often you should replace the head
- how much pressure you should apply when brushing
- how often you need to recharge the device or change the batteries

Manufacturers should be able to supply evidence of the efficacy of the product at removing plaque.

### **References:**

1. Todd J.E. and Lader D., Adult dental health, 1988, UK, HMSO, 1991
2. The scientific basis of dental health education: a policy document, Health Education Authority, 1996
3. A handbook of dental health for health visitors, midwives and nurses, Health Education Authority, 1994
4. Caudry S.D., Kliterinos A., Chan E.C., Contaminated toothbrushes and their disinfection, Canadian Dental Association Journal, Vol. 61(6):511-6, June 1995
5. Walmsley A.D., The electric toothbrush: a review, British Dental Journal, Vol. 182(6):209-118, 1997