The truth behind tooth wear

Statistics strongly suggest that tooth wear is increasing year on year in the UK. In response to this, here Prof. Andrew Eder focuses on the importance of early intervention, offering lifestyle and daily oral healthcare recommendations and treatment guidance.

Tooth wear is on the increase – over three-quarters of adults and more than 50 per cent of children show signs of abrasion, attrition and/or erosion. Comparing the most recent Adult Dental Health Survey (ADHS) with its predecessor, figures suggest that in just 11 years the incidence of tooth wear in England has increased by 10 per cent.

The growth of moderate wear in young adults over the last few years, as highlighted by the latest ADHS, is particularly worrying because it is indicative of destruction beyond that which we would expect for our patients at that stage of their life.

The ADHS states: '*The greatest increase was in the youngest three age groups; 15 percentage points, 10 percentage points and 13 percentage points for those aged 16 to 24, 25 to 34 and 35 to 44 years respectively… While the increase in moderate tooth wear is small, moderate tooth wear in 16 to 34 year olds is of clinical relevance as it is suggestive of rapid tooth wear.*'

As the adage goes, prevention is better than cure, and it would seem fair to state that the majority of the UK population is better educated about their oral health than ever before, so why is this increase occurring?

The truth is, while modern-day medicine and preventive dentistry help many people to live extended lives and keep their dentition for longer, this longevity can result in some health issues becoming more widespread, including that of tooth wear.

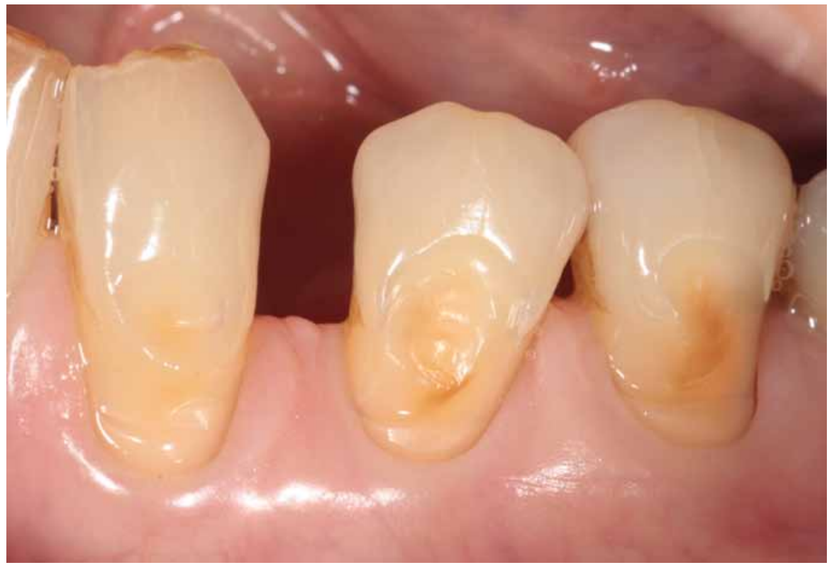
Tooth wear is multi-factorial, affecting people from all walks of life and at all ages, but there is a particularly worrying trend among the younger generations, as the ADHS shows, and among those who are making an effort to eat healthily.

Early intervention

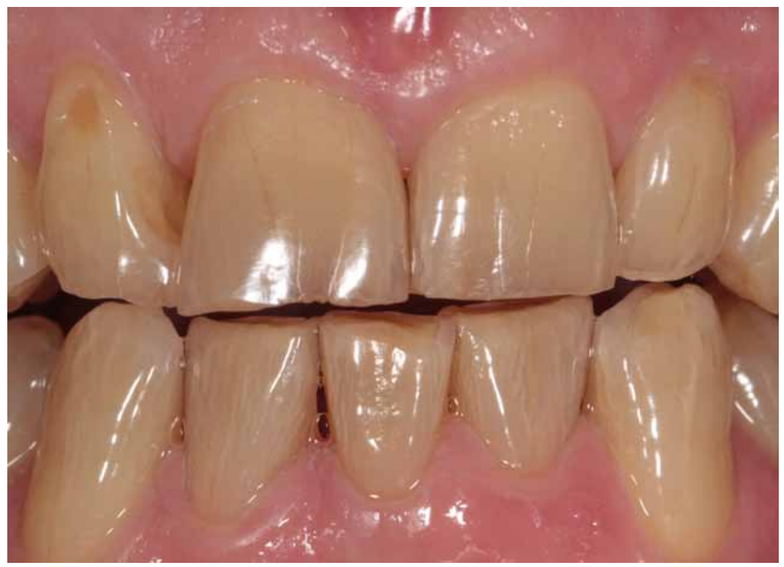
Tooth wear is a natural part of life and it gets worse as we age, so some tooth wear is unavoidable. However, early intervention by dental professionals can make a real difference to patients' susceptibility to tooth wear.

The ADHS states: '*There is no hard and fast rule about when tooth wear needs intervention, whether that be preventive strategies or treatment to restore lost tissue, but the occurrence of abnormally high levels of wear affecting several teeth… is of importance.*'

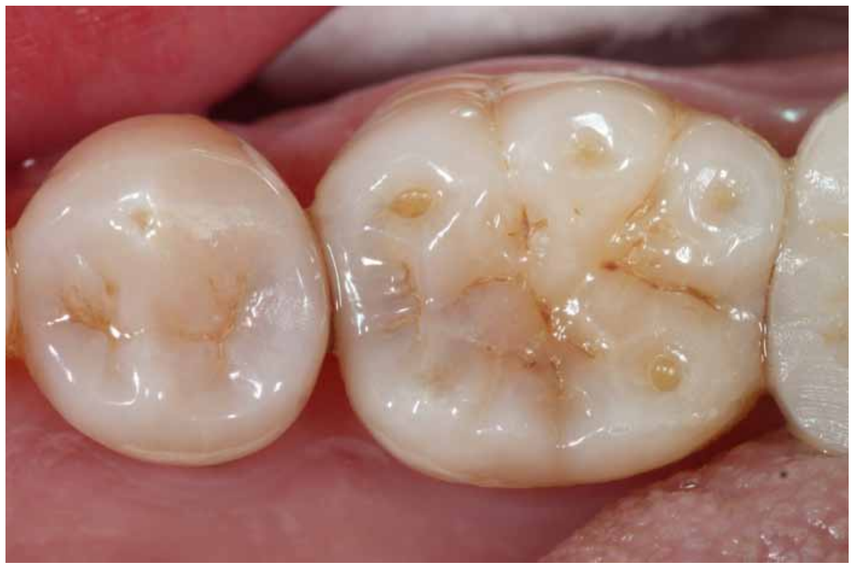
The first step in the clinician's fight against tooth wear is to assess each patient's risk – whether they are two or 82 years old.



Erosion and attrition



Attrition



Erosion and attrition

Dentists need to be on the lookout for the signs that indicate tooth wear is occurring, which include:

- Sensitive teeth
- Discolouration, including yellowing and loss of shine (where some of the outer enamel layer has been lost)
- Sharp or chipped anterior teeth
- Occlusal surfaces wearing flat and taking on a shiny, pitted appearance
- Altered occlusion as vertical height changes
- Restorations standing proud of the teeth
- V-shaped notches or shallower cupping present cervically

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There are three types of tooth wear – abrasion, attrition and erosion. Patients suffering tooth wear may exhibit one, two or all three forms.

Abrasion is caused by excessive rubbing away of enamel and dentine as a result of, for example, vigorous tooth brushing, porcelain crowns rubbing against the natural dentition or the consumption of a coarse diet.

When there is contact between the teeth over and above what is considered ‘normal’ use, attrition resulting in the loss of enamel or dentine may occur. Such patients generally grind their teeth and clench the jaw at night, which is often linked to a stressful lifestyle.

Erosion results, for example, from the consumption of acidic foods and drinks or stomach acid regurgitation, which is often found to be as a result of conditions such as bulimia nervosa, pregnancy sickness or hiatus hernia.

Patient education

Telling a patient that they are suffering from tooth wear can come as something of a surprise, especially for those in their 20s, 30s and 40s who are well educated and make an effort to live a healthy lifestyle.

Unfortunately, most people are unaware that sports drinks to increase energy and rehydrate during exercise can have a downside too. The same goes for fruit juices and fizzy diet drinks due to their low pH levels. Food choices generally perceived as healthy can also be acidic, such as quinoa, yoghurt and fruit.

Clearly, education is key here, so it is important to raise patients' awareness of what they can do to help themselves, including:

- Drinking still water or low fat milk between meals
- Limiting fruit juice to once a day and avoiding fizzy drinks
- Rinsing the mouth with water for 15 to 30 seconds after consuming acidic foods or drinks
- Chewing sugar-free gum or eating a piece of cheese after consuming acidic foods or drinks
- Waiting at least an hour to brush teeth after consuming any acidic foods or drinks
- Using a toothpaste containing at least 1400ppm fluoride and a non-abrasive toothbrush
- Using a fluoridated mouthwash every day at a different time to tooth brushing, as well as before or after acidic foods and drinks, to help limit the erosive potential.

The extended periods of intentional vomiting suffered by bulimics also have considerable impact on the dentition, causing erosion and can result in substantial oral health complications; however, such a patient is unlikely to be forthcoming, more often for newer patients, often at least until a certain level of professional trust has developed. Because of this, it is important to share examination findings with the patient in a sensitive and thoughtful manner.

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Oral health advice for a patient whose dentition is compromised by both intentional and unintentional vomiting includes:

- Issuing a fluoride rinse or gel and prescribing a high-fluoride toothpaste for daily use

- Not brushing immediately after vomiting or consuming acidic foodstuffs, but rinsing with a fluoridated mouthwash and chewing sugar-free, xylitol-sweetened gum afterwards.

Where abrasion is present, it is prudent for the dentist or hygienist to demonstrate how to brush teeth without being too vigorous and to recommend the use of a soft toothbrush and non-abrasive toothpaste. It should also be mentioned to patients that foods with a rough texture can make matters worse.

If a patient presents with pain and/or tooth wear that can be attributed to bruxism or other parafunctional activity, recommending treatment with a physiotherapist or osteopath with specialist knowledge of the temporomandibular joint (TMJ) can be helpful.

Clinical treatment

Such a referral for management of parafunction should be part of a three-step plan, with the other two steps being the nightly use of a Michigan-style hard acrylic splint as well as the prescription of muscle relaxants in the worst of cases. In the majority of cases, such a splint will protect against bruxism and TMJ pain and allow the patient's mandible to assume a reproducible and comfortable position. This also aims to break the habitual grinding pattern that may have developed.

Irrespective of aetiology, where tooth wear has caused significant damage – functionally and/or aesthetically – clinical intervention will be needed. When caught early, simple treatments may suffice; however, in more cases than we would like, treatment may need to incorporate stabilisation and more complex, definitive restoration to correct the situation.

If the patient's condition is particularly troubling or complex and/or significant changes are likely to be necessary to the occlusal scheme or the occlusal vertical dimension, referral to a specialist may be in the patient's best interests and recommended.

On-going care

As dental professionals committed to providing comprehensive care, treatment is on-going. It is essential that dental and medical professionals work in partnership to ensure control of any acid reflux or modification of diet, as well as providing whatever support patients may need to gain the greatest benefit from the time and financial investment they have made, or are likely to need to make, in their dental health. ■

Author Bio

Professor Andrew Eder is a Specialist in Restorative Dentistry and Prosthodontics and Clinical Director of the London Tooth Wear Centre®, a specialist referral practice in central London. He is also Professor/Honorary Consultant at the UCL Eastman Dental Institute and Associate Vice-Provost (Enterprise) and Director of CPD and Short Course Development at UCL. The London Tooth Wear Centre® offers an evidence-based and comprehensive approach to managing abrasion, attrition and erosion, utilising the latest clinical techniques and a holistic approach in a professional and friendly environment. For further information on the work of the London Tooth Wear Centre®, visit www.toothwear.co.uk, email info@toothwear.co.uk or call 020 7486 7180.