

# THIS WON'T HURT A BIT!

Glue-on teeth, fast-acting braces and anaesthetic spray instead of needles – the inventions to take the pain out of going to the dentist

**G**APPY, crooked, yellow and rotten – British teeth have been a bad joke for decades. But, as demand for cosmetic dentistry soars, British dental researchers are coming up with innovations to revolutionise dental care, reduce the pain of treatments, and improve the nation's smiles.

We asked some of the UK's top dentists for a preview of the latest treatments...

## 'GLASS' TOOTH PASTE TO STRENGTHEN TEETH

A TOOTH PASTE that uses dissolvable glass particles to protect your teeth has been patented by the Dental Institute at Barts and the London School of Medicine and Dentistry.

The microscopic particles stick to your teeth and dissolve, releasing the calcium and fluoride to strengthen and protect your teeth from decay and reducing sensitivity to heat and cold.

Professor Robert Hill, professor of physical sciences at St Bartholomew's Hospital in London, says: 'You brush your teeth with it twice a day, like normal. It releases minerals over 24 hours, which stay in the mouth for longer. We're aiming for it to cost £3 a tube.'

**AVAILABLE:** 18 months to two years.

## SPRAY TO AVOID THE NEEDLE

SCIENTISTS have developed an inhalable dental anaesthetic that numbs your top teeth for 30 to 90 minutes. It travels through the main nerve in the face (the trigeminal nerve) and collects in large concentrations in the teeth, jaw and structures of the mouth.

The anaesthetic works only on top teeth, as the upper jaw bone is more porous and has more holes/channels for it to flow through. Dr Uchenna Okoye, of dental practice LondonSmiling.com, claims 90 per cent of patients suffer more pain from the injection in their gums than the tooth that was worked on. 'This is a great breakthrough for all needle-phobics,' he adds.

U.S. pharmaceutical firm St Renatus is carrying out trials for a spray or nasal drops.

**AVAILABLE:** Two years.

## MAGIC WAND TO PREVENT DECAY

THE Periowave™ wand uses light therapy to activate chem-

icals applied to the mouth to kill bacteria that can cause gum disease and tooth decay. The wand can get rid of the worst kinds of bacteria with effects lasting three to six months.

Professor Stephen Porter, director of the Eastman Dental Institute at University College London, says: 'This will improve infection control. It avoids the need for potentially painful gum disease treatments.'

**AVAILABLE:** Now, at some surgeries.

## GROW YOUR OWN GUMS

CARDIFF University scientists have discovered cheek cells which act in a similar way to stem cells – so they have the potential to turn into different types of cell and could grow new tissue, such as gum tissue.

The aim is to use them to treat periodontal disease, where gum infection spreads to the bone resulting in a large loss of both hard and soft tissues.

'We realised that wounds in the mouth heal a lot more quickly than wounds to the skin, so we investigated what may be responsible for this,' explains Phil Stephens, professor of cell biology at Cardiff University's Tissue Engineering and Reparative Dentistry Department. 'The cells we identified in the inner cheek seem to work very effectively.'

**AVAILABLE:** Human trials within three to four years.

## FAST-ACTING BRACES

A VIBRATING gumshield can speed up tooth straightening with braces by 30 per cent. You bite on the gumshield, which is attached to a small motor, for ten minutes a day.

Conventional braces work by loosening the ligaments attached to the teeth; the pressure stimulates new bone to grow, holding the teeth in their new position. Bone is said

to respond faster to vibration rather than steady pressure.

Dr Anoop Maini, clinical director of the Aqua Dental Spa in London, says: 'Braces can take three years to straighten teeth. These can work in six months, but are only for adults who have braces already fitted.'

**AVAILABLE:** Now, in some surgeries, from £200.

## KEYHOLE SURGERY FOR IMPLANTS

PATIENTS undergoing a bone graft to have dental implants can have it performed by a key-hole technique. These are patients who've lost bone mass in parts of the jaw after losing teeth. Bone is taken from elsewhere in the jaw and grafted on to existing bone just below the implant site.

Instead of stripping big areas of gum, as is usually done, bone grafting can be performed through a 2-3mm incision.

This is less invasive with faster

healing than normal surgery, says Dr Bob Khanna, of the Ascot Clinic, Berkshire, the first dentist in the UK to use the technique.

**AVAILABLE:** Now, in some surgeries, from £2,000.

## DRUG TO STOP NUMB LIPS

AN INJECTION can reverse the 'numb mouth' feeling of an anaesthetic, which can last for hours after dental work. The injections contain the chemical phenolamine, which unblocks nerve channels and speeds up blood flow. This means the anaesthetic is washed away by the body quicker.

Dr Anoop Maini, director of the Aqua Dental Spa, London, says: 'Your mouth could have feeling again in half the time.'

**AVAILABLE:** Within two years.

## GLUE-ON TEETH

RESEARCHERS are developing tooth-coloured filling materials to replace veneers. Instead of drilling the tooth

down, dentists stick on facings to cover discolouration.

Professor Nairn Wilson, head of the Dental Institute at King's College London, explains: 'Veneers require the removal of natural tooth to attach them.'

'If you have them done in your 20s you may not have enough natural tooth left to replace them later in life. So we're trying to preserve natural tooth.'

**AVAILABLE:** New bonding agents are available now others will come within three years.

## MOUTH GUARD TO BOOST STAMINA

MOUTH guards for bite irregularities are already being used by U.S. Olympic athletes to improve their muscle strength.

'There is research to show that correcting a person's bite can enhance their physical performance,' says Dr Abbas Tejani, an expert in bite dentistry at the Yale Town Dental Suite, London.

He says ensuring the teeth have even contact reduces harmful stress on the nervous system and allows the neuromuscular system to function more efficiently.

'Wearing mouth guards while you exercise can help you build up speed and endurance,' adds Dr Tejani.

**AVAILABLE:** Now, custom made from around £500, [efmedispa.com](http://efmedispa.com)

## SALIVA TESTS FOR CANCER

NEW non-invasive saliva tests are being developed at the Dental Institute, King's College London to detect mouth, breast and pancreatic cancer, as well as diabetes and heart disease. The tests screen for proteins or 'markers' produced by cancer cells.

'Oral cancers are on the increase. These saliva tests could detect diseases often before symptoms appear,' says Professor Wilson.

'You could have screenings for cancers and diabetes alongside your dental treatment.'

**AVAILABLE:** Within three to five years.

**JO WATERS**

