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[King's College London](#)

New device set to combat fear of the dentist's drill

An innovative device which cancels out the noise of the dental drill could spell the end of people's anxiety about trips to the dentist, according to experts at King's College London, Brunel University and London South Bank University, who pioneered the invention.

It is widely known that the sound of the dental drill is the prime cause of anxiety about dental treatment, and some patients avoid trips to the dentist because of it. This new device could help address people's fears and encourage them to seek the oral healthcare treatment they need.

The prototype device works in a similar way to noise-cancelling headphones but is designed to deal with the very high pitch of the dental drill. Patients would simply unplug their headphones, plug the device into their MP3 player or mobile phone, and then plug the headphones into the device, allowing them to listen to their own music while completely blocking out the unpleasant sound of the drill and suction equipment. The patient can still hear the dentist and other members of the dental team speaking to them but other unwanted sounds are filtered out by the device.

Containing a microphone and a chip that analyses the incoming sound wave, the device produces an inverted wave to cancel out unwanted noise. It also uses technology called 'adaptive filtering' where electronic filters lock onto sound waves and removes them, even if the amplitude and frequency change as the drill is being used.

The device was initially the brainchild of Professor Brian Millar at King's College London's Dental Institute who was inspired initially by carmaker Lotus' efforts to develop a system that removed unpleasant road noise, while still allowing drivers to hear emergency sirens. Then with over a decade of collaboration with engineering researchers at Brunel University and London South Bank University, a prototype has been designed, built and successfully evaluated.

Although the product is not yet available to dental practitioners, King's is calling for an investor to help bring it to market. Professor Brian Millar said: "Many people put off going to the dentist because of

anxiety associated with the noise of the dentist's drill. But this device has the potential to make fear of the drill a thing of the past.

"The beauty of this gadget is that it would be fairly cost-effective for dentists to buy, and any patient with an MP3 player would be able to benefit from it, at no extra cost. What we need now is an investor to develop the product further, to enable us to bring this device to as many dental surgeries as possible, and help people whose fear of visiting the dentist stops them from seeking the oral healthcare they need."

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Notes to editors:

King's College London

King's College London is one of the top 25 universities in the world (2010 QS international world rankings), The Sunday Times 'University of the Year 2010/11' and the fourth oldest in England. A research-led university based in the heart of London, King's has nearly 23,000 students (of whom more than 8,600 are graduate students) from nearly 140 countries, and some 5,500 employees. King's is in the second phase of a £1 billion redevelopment programme which is transforming its estate.

King's has an outstanding reputation for providing world-class teaching and cutting-edge research. In the 2008 Research Assessment Exercise for British universities, 23 departments were ranked in the top quartile of British universities; over half of our academic staff work in departments that are in the top 10 per cent in the UK in their field and can thus be classed as world leading. The College is in the top seven UK universities for research earnings and has an overall annual income of nearly £450 million.

King's has a particularly distinguished reputation in the humanities, law, the sciences (including a wide range of health areas such as psychiatry, medicine, nursing and dentistry) and social sciences including international affairs. It has played a major role in many of the advances that have shaped modern life, such as the discovery of the structure of DNA and research that led to the development of radio, television, mobile phones and radar. It is the largest centre for the education of healthcare professionals in Europe; no university has more Medical Research Council Centres.

King's College London and Guy's and St Thomas', King's College Hospital and South London and Maudsley NHS Foundation Trusts are part of King's Health Partners. King's Health Partners Academic Health Sciences Centre (AHSC) is a pioneering global collaboration between one of the world's leading research-led universities and three of London's most successful NHS Foundation Trusts, including leading teaching hospitals and comprehensive mental health services. For more information, visit: www.kingshealthpartners.org.

Brunel University

Brunel University, based in Uxbridge, West London, was founded in 1966 and is home to over 15,000 students and 2,500 staff from more than 110 countries.

Brunel is one of the UK's top 50 universities with a world-class reputation for its cutting-edge research and its challenging and forward-looking degree programmes. Its ethos is to combine academic rigour with the practical, entrepreneurial and imaginative approach pioneered by its namesake, Isambard Kingdom Brunel.

London South Bank University

London South Bank University is one London's oldest and largest universities, with students drawn to its Southwark-based campus from across the globe, throughout the UK and from the local area. LSBU offers one of the most vocational-orientated course portfolios around, and is the top modern university for graduate starting salaries in the UK. LSBU is one of the UK's top 20 institutions for engineering research with the majority of the work rated as internationally excellent. The LSBU Acoustics Research Group is active in a number of areas in addition to this, including areas such as musicians' hearing and classroom acoustics.

