

MOLE RATS APPROPRIATE FOR HUMAN DENTAL REGENERATION STUDIES

The African silvery mole rat continuously replaces its cheek teeth, with new teeth displacing old ones in an escalator-like fashion, researchers in France have found.¹

Paleontologist Mr H. Gomes Rodrigues and colleagues used a form of X-ray CT scanning to create 3D renderings and virtual slices of the teeth of 55 silvery mole rats. They discovered that the rodents' teeth undergo continuous replacement, similar to most non-mammalian vertebrates. The mole rat's teeth are also replaced horizontally, unlike the vertical replacement found in humans and most mammals. The authors suggest that this may help silvery mole rats preserve their teeth when they dig into hard, abrasive soil to build extended burrows and find food.

When the researchers compared the mole rats with the four other mammalian species known to continuously replace their teeth, they found a set of common traits: a forward movement of new teeth from the rear to the front of the jaw, the continued eruption of teeth after the age

of sexual maturity, and the growth of extra teeth. The authors suggest these traits are essential prerequisites for the development of continuous dental replacement.

These dental traits are partially present in humans but absent in mice, suggesting that mole rats are more appropriate than mice for studying the genetic mechanisms behind dental regeneration in humans, according to Gomes Rodrigues and colleagues.

1. Gomes Rodrigues H, Marangoni P, Šumbera R, Tafforeau P, Wendelen W, Viriot L. Continuous dental replacement in a hyper chisel-tooth digging rodent. *Proc Natl Acad Sci USA* 2011; **108**: 17355-17359.



TOOTH MOVEMENT AN ALTERNATIVE TO BONE TRANSPLANTS

Swedish researchers are showcasing a new method of replacing lost teeth by moving existing teeth into a toothless area using a brace.

Replacing lost teeth often involves artificially building up the jaw as losing teeth due to illness or injury means that the jaw in that area decreases in volume. This reduction makes it difficult to carry out dental implants and the jaw may need to be built up with a bone transplant.

In the alternative method, consultant orthodontist Birgitta Lindskog Stokland and her colleagues at the University of Gothenburg's Sahlgrenska Academy managed to use a brace to move existing teeth into a toothless area with limited bone volume, without any reduction of the tooth's natural attachment in the jaw – in an experimental study on dogs.

In a subsequent clinical study, the researchers managed to show that the same procedure in humans

caused only small changes in the tissue around the tooth. At one year follow-up the minor damage had lessened.

The original site of the moved tooth suffered a reduction in bone mass and dental tissue volume, though not to the same extent as when teeth come out for other reasons. This means that this area is well-suited to implants or other tooth replacements without the need for bone transplants.

Full details of the research *On tooth movements and associated tissue alterations related to edentulous areas and bone defects* can be found at: <http://gupea.ub.gu.se/handle/2077/25486>.

MANCHESTER PRACTICE FIGHTS SILENT KILLER

A dental practice in Manchester lent their support to the Blood Pressure Association's 'Know your Numbers!' week in September – a campaign directed towards the public understanding healthy blood pressure. The Mall Advanced Dental Care offered a free blood pressure check to all their patients during Know your Numbers! week.

'We always fully record our patient's medical history when providing dental treatment, but we are keen to help them take a holistic approach to their health,' said Chloe Booth of The Mall Advanced Dental Care. 'City living, stress and work pressures can increase blood pressure issues, and Know your Numbers! week is a fantastic campaign for city-dwellers to focus their minds on looking after their own health.'

One in three adults in the UK has high blood pressure which is the biggest known cause of premature death and disability in the UK due to the strokes, heart attacks and heart disease it can cause. More than 5 million people are unaware that they have high blood pressure, which is why it is called the silent killer.

'Many of our patients are movers and shakers in the financial industry here in Manchester, and we're hearing reports about massively increasing stress levels in line with the credit crunch,' said Chloe. 'Signs of stress are often presented in the mouth, for example teeth grinding, and we can also help people relax by treating some of these other issues.'

To find out more about the Blood Pressure Association visit <http://www.bpassoc.org.uk/microsites/kyn/Home>.

