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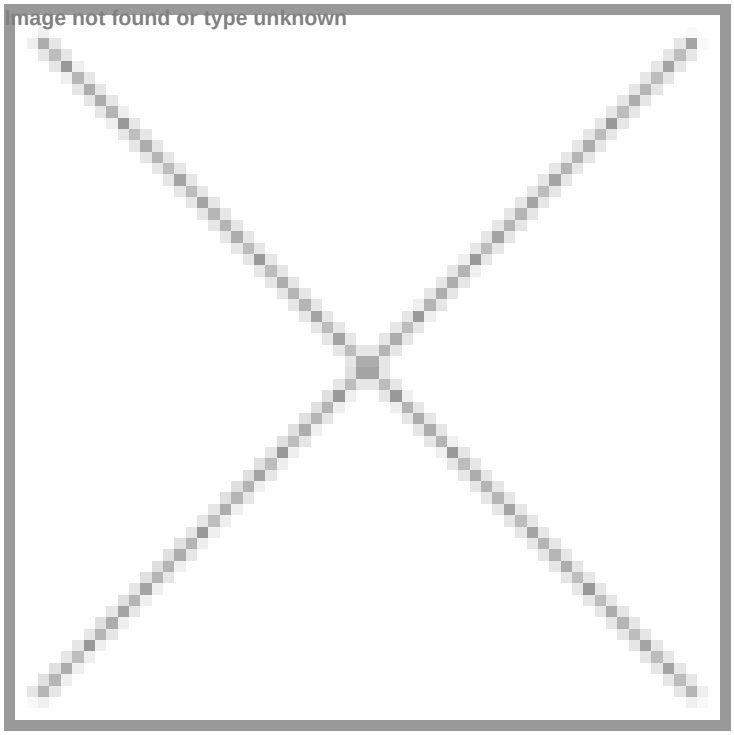
# Prevent oral infections with bacteria-killing dentures

15 October 2018 | News

**Common oral infections in older adults, such as candidiasis, can be prevented with ‘rechargeable’ bacteria-killing and fungi-killing dentures, designed by researchers at Manchester Metropolitan University.**




Candidiasis is a yeast infection that affects many people who wear dentures, causing difficulty eating and drinking – and can lead to serious problems in the blood, heart, brain, eyes and bones.

Led by Dr Lubomira Tosheva in the School of Science and the Environment and Dr Sladjana Malic in the School of Healthcare Science, an interdisciplinary research team has developed an acrylic resin for dentures that actively fights bacteria and fungi in the mouth.

The dental resin uses a slow-release mechanism, enabling it to work consistently for 45 days.

The researchers mixed silver, which has strong, active antimicrobial properties, with zeolite, a microporous material that enables and controls the slow, timed release of the antibacterial activity in the mouth.

Dentures can be regularly ‘recharged’ with antimicrobial and antifungal capability, simply by adding more silver to the dental resin.

In addition, the resin fights bacteria and fungi without affecting the appearance of the dentures, so the wearer can have a healthy mouth and retain a bright smile, with no discolouration.

Lubomira Tosheva, a materials chemist and lead author of the research, said: ‘oral infections commonly affect people who

wear dentures, and can lead to serious healthcare problems, so it is crucial that dentures have the capability to tackle potential diseases at their root before they occur.

‘Our interdisciplinary team has successfully developed a new antimicrobial acrylic resin, made with zeolite and silver, which enables dentures to consistently kill oral bacteria and fungi – meaning that denture wearers can now maintain a healthy mouth without too much effort.’

Dr Sladjana Malic, a microbiologist from Manchester Metropolitan’s School of Healthcare Science, said: ‘we tested the dental resin for antimicrobial activity and for toxicity, ensuring that the materials have the capability to actively kill bacteria and fungi with no harm to humans.

‘The results showed that the antimicrobial dental resin is effective for 45 days, and can be potentially recharged after this time with the addition of more silver.

‘This new dental resin has exciting applications for the prevention of oral diseases such as candidiasis.’

This resin has not been made into dentures yet, but researchers are exploring its potential for commercialization. The market potential of novel antifungal therapies is something that many companies, such as Novartis, are hoping to involve into.