

'Jailbreak' bacteria can trigger heart disease

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Plaque-causing bacteria can jailbreak from the mouth into the bloodstream and increase your risk of heart attack says a scientist at the Society for General Microbiology's autumn meeting in Nottingham.

Professor Howard Jenkinson, from the University of Bristol explains how oral bacteria can wreak havoc if they are not kept in check by regular brushing and flossing. "Poor [dental hygiene](#) can lead to bleeding gums, providing bacteria with an escape route into the bloodstream, where they can initiate [blood clots](#) leading to heart disease," he said.

Streptococcus bacteria commonly live in the mouth, confined within communities termed biofilms and are responsible for causing tooth plaque and [gum disease](#). The University of Bristol researchers, in collaboration with scientists at the Royal College of Surgeons in Ireland (RCSI), have shown that once let loose in the bloodstream, Streptococcus bacteria can use a protein on their surface, called PadA, as a weapon to force platelets in the blood to bind together and form clots.

Inducing blood clots is a selfish trick used by bacteria, as Professor Jenkinson points out. "When the platelets clump together they completely encase the bacteria. This provides a protective cover not only from the immune system, but also from antibiotics that might be used to treat infection," he said. "Unfortunately, as well as helping out the [bacteria](#), platelet clumping can cause small blood clots, growths on the [heart valves](#) (endocarditis), or inflammation of blood vessels that can block the blood supply to the heart and brain."

Professor Jenkinson said the research highlights a very important public health message. "People need to be aware that as well keeping a check on their diet, blood pressure, cholesterol and fitness levels, they also need to maintain good dental hygiene to minimise their risk of heart problems."

The team is using a brand-new blood flow model, developed by Dr Steve Kerrigan at the RCSI, School of Pharmacy, Dublin, that mimics conditions in the human circulatory system. "We are currently investigating how the platelet-activating function of PadA can be blocked. This could eventually lead to new treatments for cardiovascular disease which is the biggest killer in the developed world," said Professor Jenkinson.

Provided by Society for General Microbiology

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