

Antioxidants fight off gum disease

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BBC NEWS



Gum disease is a prime cause of lost tee

People with severe gum disease have been found to have low levels of antioxidant chemicals that may offer natural protection.

Other studies have shown that periodontal disease, in which bacteria attack the teeth and gums, appears to be a genuine threat to general health.

It is not only a prime cause of teeth-loosening, but has been linked to both the onset of diabetes, and a worsening of lung disease.

Studies have even pointed to gum disease as a potential threat to unborn children.

However, research at the School of Dentistry at the University of Birmingham has uncovered clues as to why some patients suffer and some do not.

They closely analysed a type of saliva called gingival crevicular fluid - the small quantity of liquid found between the teeth and gums.

They found that levels of a key antioxidant called glutathione were much higher in

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Dr Simon Langley-Evans, University of Nottingham

patients who had healthy gums.

Patients with severe gum disease had very low levels of the chemical.

In the journal *Molecular Pathology*, published on Tuesday, the researchers wrote: "Whatever the reason, these observations have important implications for the pathogenesis and treatment of periodontal disease."

Further research, they said, would help determine "new therapeutic strategies".

Measuring disease

Dr Simon Langley-Evans, a lecturer in nutrition at Nottingham University, told BBC News Online that it was hard to tell if low antioxidant levels were a cause of the spread of gum disease - or simply a sign that the body was using up its reserves fighting back.

However, he said that measuring these chemicals could be a reliable predictor of the severity of disease.

He said: "We should be able to predict whether a patient has very bad periodontal disease or a mild case."

He said that hopefully, one day, researchers might find a way to boost antioxidant levels in patients with a treatment or diet advice.

However, his recent research had found that adding vitamin C to the diet appeared to have no effect.

He said: "The first thing you should do if you have periodontal disease is stop smoking.

"Cigarette smoke destroys antioxidants."

Free radical scavenging is defective in tooth disease

<http://www.nutraingredients.com/news/news.asp?id=5949>

26/11/02 - The capacity to mop up harmful oxygen free radicals seems to be reduced in people with periodontal disease, finds research in this month's *Molecular Pathology*.

Periodontal disease affects between 10 and 15 per cent of people worldwide. A leading cause of tooth loss, it develops as a result of bacterial infection from a build-up of the

sticky, colourless bacterial plaque that continually forms on the surface of the teeth, especially in the crevices in between. The inflammation that results from such infection destroys the attachment fibres and supporting bone that hold the teeth in the mouth.

The research team tested the content of plasma samples and gingival crevicular fluid, or GCF for short, in 10 middle aged men and women with advanced periodontal disease, and five people of the same age with healthy teeth and gums. GCF bathes the delicate and vulnerable tissues around the teeth.

An unusual antioxidant response was found in the GCF, which was not seen in the plasma samples. Exhaustive laboratory studies in which inflammatory cell activity was artificially stimulated and various biological peptides analysed led to the discovery that the antioxidant was glutathione, and that GCF levels of glutathione were up to 400 times those found in plasma.

The antioxidant capacity of both the systemic (plasma) and local (GCF) samples was significantly lower in people with periodontal disease than in those with healthy teeth and gums. Glutathione levels and evidence of the neutralisation (scavenging) of free radicals were low in those with periodontal disease, but very high in those with healthy gums.

High glutathione levels are also found in healthy lung and cervical tissue, said the authors, and may be part of a defence strategy by delicate tissue lining (epithelial) cells against bacterial assault at exposed surfaces.

But they suggest that in severe periodontitis, the immune cell response appears to be imbalanced in that white cells become hyperactive, leading to increased inflammation and overproduction of oxygen free radicals while scavenger (glutathione) levels are too low to cope with this.

Source: Molecular Pathology 2002; 55: 367-73