



**Perio
& Cardio**

Healthy gums for a healthy heart



Recommendations for the oral-healthcare team

Periodontitis & Cardiovascular Disease (CVD) at a glance

Both periodontitis and cardiovascular disease (CVD) are very common chronic non-communicable diseases.

There is scientific evidence of associations between periodontitis and CVD, including increased risk of acute myocardial infarction, heart failure, and stroke.

Early diagnosis, prevention, and co-management (by dentists and physicians) of both CVD and periodontitis is of the utmost importance.

In patients with CVD, periodontal treatment and good oral-hygiene habits may reduce the incidence of acute CVD events.

CVD is the most common cause of death.

Patients with CVD should receive a thorough oral-health examination.

Untreated periodontitis leads to tooth loss. However, periodontitis can be prevented, is easily diagnosed, and can be clinically controlled.

Common lifestyle factors – such as smoking, stress, obesity, diabetes, and an unhealthy diet – aggravate both periodontitis and CVD.

Recommendations

for the oral-healthcare team

Periodontal diseases and cardiovascular diseases are widespread non-communicable diseases that have a significant impact on health and quality of life.

Periodontal diseases (gingivitis and periodontitis) are probably the most common disease of mankind¹: about 80% of people aged over 35 suffer from them and severe periodontitis is the sixth most prevalent disease worldwide, affecting about 800 million people (about 10% of the global population).² If untreated, periodontitis causes tooth loss and it is associated with poorer nutrition, speech, and self-confidence and a lower quality of life.

Cardiovascular diseases (CVD) involve the heart or the blood vessels and include ischaemic heart disease, stroke, hypertension, rheumatic heart disease, cardiomyopathy, and atrial fibrillation. CVD are responsible for a third of all deaths globally (around 18 million per year) but for 45% of deaths in Europe (around four million per year). They are more common in developed countries with “Western” lifestyles because of an ageing population, sedentary lifestyles, and unhealthy diets.

The main risk factors for CVD include smoking, high blood pressure, high levels of cholesterol or triglycerides, altered glucose metabolism, and obesity. Some of these factors are also common to periodontitis. Fortunately, there are simple lifestyle changes that can reduce these risk factors.

Periodontitis is associated with several forms of cardiovascular disease and cardiovascular mortality and may be a preventable risk factor for CVD.

While more research is needed on the effect of periodontal treatment on CVD and CVD risk factors, there is evidence that periodontal treatment and oral hygiene helps in the primary prevention of CVD. For instance, patients who brush their teeth twice a day and have a good oral-health routine may have less risk of acute CVD events. Periodontal treatment in CVD patients is safe, although in some cases – where patients receive anti-coagulant or anti-platelet therapy – safe haemostatic measures need to be taken.

Dentists and other oral-healthcare professionals are encouraged to compile detailed patient histories to assess CVD risk factors, inform them of any CVD risk, and tell them to consult their doctors if any of these factors is not controlled. They should inform patients with periodontitis of their higher risk of suffering CVD, provide them with a tailored oral-hygiene regime, and encourage them to address lifestyle factors that increase the risk of both diseases. Patients with CVD should be given a thorough oral examination and placed on a preventive care regime if no periodontitis is diagnosed or a treatment regime if periodontitis is found.

Finally, oral-healthcare professionals should tell patients with both periodontal disease and CVD to follow recommended dental regimes (prevention, therapy, and maintenance) and they should provide non-surgical treatment as needed. Surgical treatment, including implant therapy, may be provided but clinicians should first consult with patients' doctors and/or cardiologists.

¹ Tim Footman (editor), Guinness World Records 2001 (London: Guinness World Records Ltd, 2000).

² Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017, The Lancet, Vol. 352 (November 2018), 1789-1858.

Periodontitis and cardiovascular disease are both widespread conditions among the world's population

General facts



Cardiovascular disease

17.9 million deaths globally per year
(1/3 of deaths)
In Europe, 3.9 million deaths per year
(45% of deaths)

Prevalence:

Nearly 500 million people worldwide
affected by CVD in 2017



Periodontitis

50% of global population

Prevalence:

Approx. **800 million** people
around the world with **severe forms**



Both cardiovascular disease (CVD) and periodontitis are **non-communicable diseases (NCD)** – i.e. diseases that are not transmissible directly from one person to another.



NCD account for **€115 billion** of healthcare costs in Europe per year.

Cardiovascular disease facts

Cardiovascular disease (CVD) is a class of disease that involves the heart or blood vessels and includes:

- ischaemic heart disease
- stroke
- hypertension
- rheumatic heart disease
- cardiomyopathy
- atrial fibrillation

CVD is also referred to as coronary heart disease, cerebrovascular disease, and peripheral vascular disease.

Cases are increasing because of:

- an ageing population
- sedentary lifestyles
- unhealthy diets high in processed food and refined carbohydrates

Lifestyle risk factors for CVD include:

- Smoking
- Dyslipidaemia (high levels of cholesterol or triglycerides)
- Hypertension (high blood pressure)
- Altered glycaemic levels
- Obesity

These risk factors can be reduced by:

- Cutting salt intake
- Reducing intake of saturated fats and refined carbohydrates
- Exercise
- Increasing intake of antioxidant micronutrients
- Moderate alcohol consumption
- Quitting smoking

Periodontitis facts

Periodontal diseases – gingivitis and periodontitis – are the most prevalent inflammatory diseases in humans.

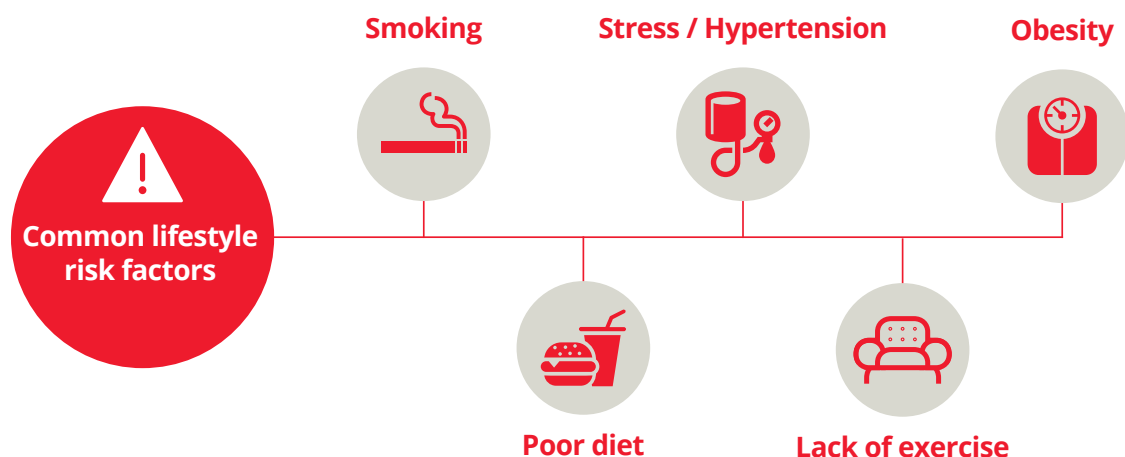
If untreated, periodontitis causes tooth loss and it is associated with poorer nutrition, speech, and self-confidence and a lower quality of life.

Periodontitis is associated with higher levels of atherosclerosis, endothelial dysfunction, glycaemic levels, and systemic inflammation.

Evidence exists to support associations between severe periodontitis and several NCD including diabetes, cardiovascular disease, chronic obstructive pulmonary disease, and chronic kidney disease.

Periodontitis is easily diagnosed and it can be clinically controlled; with regular high-quality supportive treatment, clinical results can be maintained.

Successful treatment of periodontitis is associated with a reduction of systemic inflammation, improvement of glucose metabolism, and better quality of life.



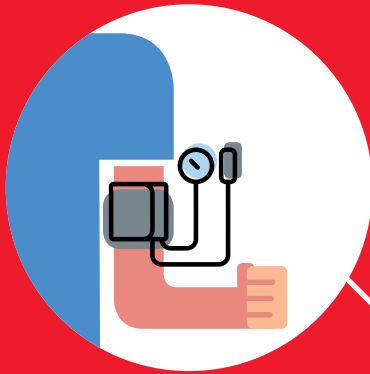
The relationship **between periodontitis and CVD**

Evidence

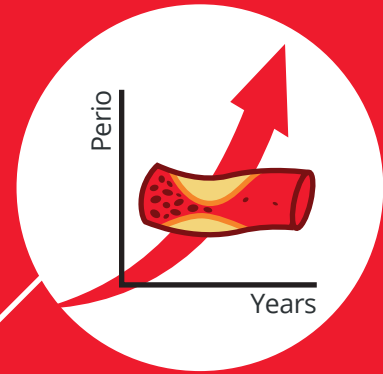
There is evidence that periodontitis is associated with various forms of cardiovascular disease, including: coronary artery disease, myocardial infarction, cerebrovascular disease, cardioembolic and thrombotic stroke, peripheral artery disease, atrial fibrillation, and heart failure.

There is also evidence that:

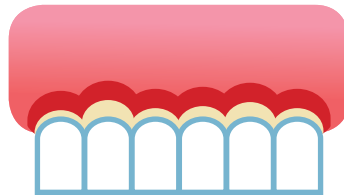
Periodontitis patients exhibit significant endothelial dysfunction.



Periodontitis leads to increased risk for future atherosclerosis (narrowing of the arteries).



Periodontitis



Periodontitis appears to be a another, yet preventable, risk factor for CVD.



Periodontitis causes inflammation that affects the development of atherothrombogenesis (detachment of atheromas in arteries).



Periodontitis presence is associated with increased risk of future major cardiovascular events, including acute myocardial infarction, heart failure, and stroke.

Reasons for the associations

Possible reasons for these associations include:

- A higher incidence of bacteraemia that enter the bloodstream in patients with gingivitis or periodontitis, potentially causing various effects systemically.
- More virulent bacteria are present in periodontitis patients, resulting in greater inflammation, which may trigger events with an adverse effect on general health.
- Periodontitis pathogens (e.g. *Porphyromonas gingivalis*) promote atheroma formation and accelerate atherosclerosis.
- Periodontal pathogens generate antibodies (anticardiolipin antibodies) that might eventually cross-react with the cardiovascular system of the patient, possibly contributing to the onset of CVD.
- Compared to people without the disease, periodontitis patients present:
 - A higher level of cytokines and inflammatory mediators, which have been associated with a higher incidence of CVD.
 - A higher level of fibrinogen (thrombotic factors).
 - Higher levels of traditional CVD risk factors such as cholesterol, LDL, triglycerides, VLDL, oxidised LDL, etc.
- Periodontitis and CVD share the same genetic factors. There is a specific area on chromosome 9 – in which multiple expressions have been noted – that also links to Type-2 diabetes and Alzheimer’s Disease.

Future research

Key questions for further research include:

- The incidence of CVD after periodontal treatment in subjects affected by periodontitis.
- The impact of periodontal treatment on CVD risk factors in large-study populations.



Healthy gums for a healthy heart



Treatment

- Patients who brush their teeth less than once a day have the highest incidence of acute CVD events.
- Patients who brush their teeth twice a day and have a good oral-health routine may reduce the incidence of acute CVD events.
- Successful periodontal treatment could reduce the incidence of acute CVD events independently of traditional CVD risk factors.
- There is insufficient evidence to support or refute the potential benefit of treating periodontitis in preventing or delaying CVD events.

It is therefore very important to maintain a good oral-health hygiene with a daily routine of brushing teeth twice a day, cleaning between the teeth (interdental cleaning), visiting the dentist regularly, and having any gum disease treated.

Is periodontal treatment safe for patients with CVD?

Patients with CVD:	Treatment is safe.
Bleeding risks:	Low in vast majority of cases.
Patients with anti-platelet treatment:	Periodontal treatment is fine, provided safe haemostatic measures are taken. Anti-platelet treatment is not to be discontinued.
Patients with anti-coagulant therapy:	
Vitamin K antagonists:	Periodontal treatment is safe, provided safe haemostatic measures are taken.
Novel oral anti-coagulants:	Periodontal treatment is safe, provided safe haemostatic measures are taken.



What you need to do



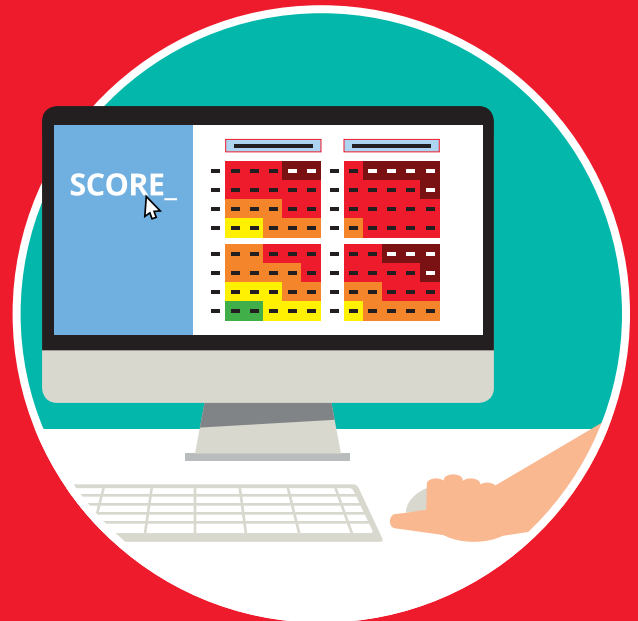
Compile a detailed patient history to assess periodontitis and CVD risk factors.



Suggest that patients consult their doctor if any of these risk factors are not controlled.



People without diagnosis of CVD but with CVD risk factors should be informed of their CVD risk.



It is suggested that risk assessment be performed based on the recommendations of the European Society of Cardiology (SCORE).
www.escardio.org/Education/Practice-Tools/CVD-prevention-toolbox/SCORE-Risk-Charts

Patients with periodontitis



- Inform them that they have a higher risk of suffering CVD.
- Inform them that they should manage their CVD risk factors: specifically, lifestyle factors – such as smoking, stress, obesity, and poor diet – that increase the risk for both diseases.
- Provide oral-health education and a tailored hygiene regime (brush twice a day, interdental cleaning, and chemical plaque control in some cases).

Patients with CVD



- Provide them with a thorough oral-health examination (including periodontal evaluation, full-mouth probing, and bleeding scores).
- If no periodontitis is diagnosed, they should be placed on a preventive care regime and monitored regularly (at least once a year).
- If periodontitis is diagnosed, it should be managed as soon as the patient's cardiovascular status permits.
- Patients with extensive tooth loss should be encouraged to pursue dental rehabilitation to restore adequate mastication for proper nutrition.

Patients with both periodontitis and CVD



- Inform them that they should strictly follow recommended dental regimes for prevention, therapy, and maintenance.
- Irrespective of the level of CVD and medication, non-surgical periodontal therapy should be provided.
- Periodontal surgery and implant therapy should be provided in a similar way to its application to patients without CVD. But dental clinicians should consult the patient's doctor/cardiologist and pay special attention to:
 - Hypertension: Measure patient's blood pressure (after appropriate relaxation) before any surgical intervention. If blood pressure is high (above 180/100), surgery should be postponed until it has stabilised.
 - Medication with anti-platelet and anti-coagulant drugs:
 - Periodontal procedures can be performed 18-24 hours after the last intake of anti-coagulant drugs.
 - The dentist should not change a patient's medication and, if in any doubt, should consult the patient's doctor/cardiologist before any intervention.
 - Patients with higher risk of bleeding: Discontinuation of therapy should be agreed with the medical professional responsible for and/or prescribing the anti-coagulant therapy.
 - Any alterations in medication should be discussed and agreed with the relevant medical professional.
- All surgical interventions that can be postponed should be delayed until after treatment stabilisation and appropriate consultation with the medical specialist.
- Patients receiving multiple anti-coagulant and anti-platelet treatments simultaneously need individualised management by the responsible medical professional according to their thrombotic and haemorrhagic risk.
- Patients with a risk of endocarditis should be premedicated with antibiotics following current guidelines.



The European Federation of Periodontology (EFP) is a non-profit organisation dedicated to promoting awareness of periodontal science and the importance of gum health. Its guiding vision is "periodontal health for a better life."

Founded in 1991, the EFP is a federation of 37 national periodontal societies that represents more than 16,000 periodontists, dentists, researchers and oral-health professionals in Europe and around the world. It pursues evidence-based science and the general interest, promoting events and campaigns aimed at both professionals and the public.

Through events such as the triennial EuroPerio congress, its scientific publication the Journal of Clinical Periodontology, its accredited programme for postgraduate education, and the annual Gum Health Day awareness initiative, the EFP is at the forefront of promoting periodontal science and gum health.

www.efp.org



The World Heart Federation is the principal representative body for the global cardiovascular community, representing more than 200 heart foundations, scientific societies, civil society, and patient organisations from over 100 countries.

Together with our members, we are working to end needless deaths and build global commitment for improved cardiovascular health at the global, regional, national, and community levels.

We believe in a world where heart health for everyone is a fundamental human right and a crucial element of global health justice.

www.worldheart.org



*DENTAID is a multinational company devoted to the research, development, manufacture and marketing of oral health products founded with a clear mission: **improving people's oral health**. The company's spirit of innovation and commitment to society has granted its leadership in this field.*

DENTAID offers a wide range of solutions for the prevention, diagnosis, and treatment of diseases caused by oral biofilm.

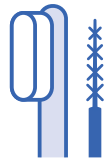
Moreover, DENTAID promotes education, quality training for professionals, and continued support in their daily practice. Currently, it has 9 subsidiaries and is present in over 70 countries around the world. The brands Vitis®, Perio-Aid®, Interprox®, Halita®, and Dentaaid Xeros® are distributed internationally.

www.dentaid.com

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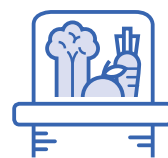
visit your doctor and dentist regularly



clean your teeth twice a day



stay active, exercise



eat healthy foods, watch your weight



do not smoke