TAKE CARE OF YOUR
gums 14

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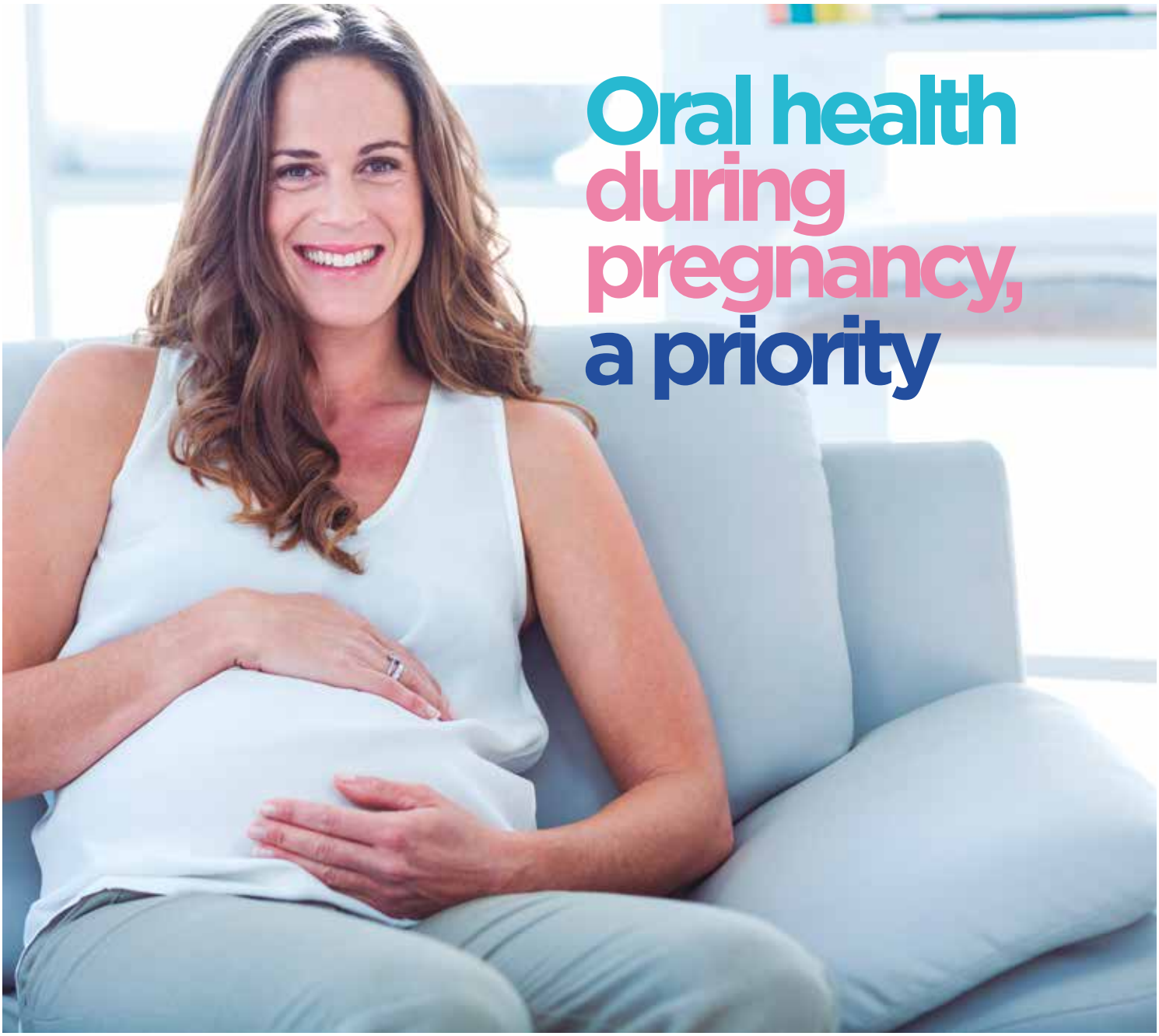

Oral health during pregnancy, a priority

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Take Care of your Gums

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Regina Izquierdo
Scientific Editor of the magazine
Take Care of Your Gums

Information, prevention and health for everyone

IN THIS FIRST EDITION as scientific director of this magazine, I would like to thank my predecessor, Héctor J. Rodríguez Casanovas, for the inheritance I have received: an exceptional team of collaborators and a solid project.

I take on this new responsibility as a double challenge. Because of the need for training and information in questions of oral health that our patients, the general population, and other health professionals demand. And, at the same time, to maintain the stimulus and dynamism in support of health to ensure that prevention is consolidated as a key message for everyone, despite the difficulties in raising awareness of the benefits of having healthy habits.

We will continue, and this is the other great challenge, to try to innovate in each issue of *Take Care of Your Gums*, opting for current topics that are able to arouse general interest.

SEPA has undoubtedly become a benchmark in informative topics through an active defence of a "periodontology for everyone."

In line with this aim of always wanting to reach more people, our magazine has been published in other languages (recently in English). And we soon hope to be able to distribute it also in Latin America.

To start this journey with an issue dedicated to women – specifically pregnancy and oral health – seems to me to be the best of beginnings. And to have in this issue an interview with the cardiologist Valentín Fuster is a privilege for everyone. This world-renowned expert affirms that only 2% of Spaniards aged more than 50 do not have cardiovascular risk factors; because of this, it is never too late to improve oral and general health.

We must think about and promote health for everyone, as we are doing with *Take Care of Your Gums*. As the Greek philosopher Thales of Miletus proposed, "the happiness of the body is based on health, and that of understanding on knowledge."

Take Care of Your Gums
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Oral disorders in pregnancy: undesirable, preventable, and curable

During pregnancy, a woman experiences a series of physiological changes in her organism. Within the mouth, there are often changes such as inflammation of the gums or the appearance of caries. 'Normal' situations associated with pregnancy – but in fact they are not normal, and they can and should be avoided

SECTION CO-ORDINATED BY:

Juan Puchades Rufino
Associate professor of periodontology at the University of Valencia

FROM THE SECOND MONTH of pregnancy, a series of hormones (oestrogens and progestogens) are secreted that modify the environment of the gums, facilitating the increase of inflammation with more bleeding, reddening, and widening of the thickness of the tissues that surround the tooth.

This is known as pregnancy gingivitis and it is present in two out of three pregnant women.

Pregnancy gingivitis

However, during pregnancy this increase in hormones is not sufficient in itself to generate this inflammatory condition, as it requires a minimal amount of bacterial biofilm[1] as a basis to be able to initiate it. Because of this, pregnancy gingivitis does not really present clinical differences in relation to gingivitis induced solely by the presence of bacterial plaque, apart from the propensity to increase inflammation.

Pregnancy itself does not cause gingivitis. Nonetheless, about half of women with gingivitis before pregnancy can suffer a worsening of their periodontal health during the period of gestation, even to the extent of developing periodontitis.

This is because of the fluctuations in the levels of oestrogens and progesterone, combined with changes in the oral microbiota[2] and the reduction of the immune response during pregnancy.

Poor oral health in the mother can have a relationship with problems in the foetus

Pregnancy Epulis

Sometimes there is an ulceration caused by an exacerbated response to inflammation which is known as pregnancy Epulis.[3]

This benign lump tends to disappear after treatment and should be removed surgically only when it causes problems with the patient's mastication or hygiene.

Negative consequences

There is no doubt that inadequate oral health in the mother can be related to problems in the foetus, such as premature birth, low birthweight, and a greater risk of pre-eclampsia.[4]

Much scientific evidence indicates that poor hygiene before and during pregnancy is the main predisposing factor for these diseases. Studies suggest that up to 18% of premature births could be related to the presence of a periodontal disease and that between 30% and 50% of them are caused by infections.

Pre-eclampsia is one of the main causes of maternal and neonatal mortality and morbidity. In Spain, it is estimated that this relationship exists in between 1% and 2% of pregnancies.

Women with periodontal disease have five times more risk of suffering pre-eclampsia during pregnancy than those who are gingivally health, between 4% and 7% suffer premature birth, and periodontal disease is one of the main causes of birthweights lower than 2.5kgs. →

THE OPINION OF THE EXPERTS

"To prevent complications, it is advisable to have a pre-pregnancy dental consultation to treat existing diseases and to start the pregnancy with periodontal health"

Ana Carrillo
Associate professor in the Faculty of Dentistry, Complutense University of Madrid.

Alert to the warning signs

There are many oral manifestations that the pregnant woman can develop, many of them associated with the significant physiological changes that are produced in her body during pregnancy. Being aware before their appearance can facilitate a rapid response with preventive or curative measures. These are some of the main oral alterations that the pregnant woman tends to notice:

- Periodontal disease
- Caries
- Tooth mobility
- Pregnancy Epulis (which forms in the gums or the soft part of the mouth)
- Tooth erosion
- Xerostomia (dry mouth)
- Tooth sensitivity
- Halitosis (bad breath).

Isabel Santa Cruz
Co-ordinating professor of the master's degree in periodontology, Complutense University of Madrid.

"Prevention and treatment of periodontal disease is essential to avoid its worsening during pregnancy"

→ Because of all this, we should know that the best treatment for problems in the gums, as well as for the greater presence of caries, is preventive treatment. This means obtaining optimal conditions of oral health before pregnancy or, where this is not possible, establishing them as soon as possible during it. Effective oral hygiene by the patient will be key to this process.

Pregnancy and oral health: Questions with answers

Pregnant women often ask their dentist a variety of questions. Nonetheless, there are some that are commonly repeated and, in many cases, result from social ignorance or certain erroneous beliefs.

Can intraoral radiographs be performed during pregnancy?

During pregnancy routine, check-up radiographs should be avoided.

However, in the case of a dental emergency they can be necessary, with the required protection. Dental radiographs are not contraindicated in pregnancy.

Gain a child, lose a tooth?

The saying "gain a child, lose a tooth" is a myth, as the calcium that the baby needs comes from what the mother eats and not from her teeth.

A balanced diet (with an adequate presence of dairy products), as well as calcium supplements (if these are recommended by the obstetrician) are enough to avoid problems.

The best prevention of caries remains performing correct and complete oral hygiene, with daily toothbrushing, and the use of dental floss and/or interdental brushes.

Pregnancy gingivitis is present in two in three pregnant women

Eating between meals predisposes the development of caries during pregnancy?

During pregnancy, many women feel the uncontrollable desire to eat or snack at all hours of the day. They should avoid the foods and sugary drinks that encourage the appearance of caries. It is recommended to brush teeth using a fluoride toothpaste after snacking.

Vomiting during pregnancy can damage the teeth?

Excessive vomiting (caused by morning sickness), as well as gastric acids, can lead to a loss of minerals in the teeth and encourage caries. The dentist should be informed about this phenomenon and will apply fluoride to the teeth or recommend a toothpaste and a mouth rinse with fluoride to prevent this problem.

THE OPINION OF THE EXPERTS

"Women should start their pregnancies with good oral health as part of the care of the gestation"

Tirso Pérez Medina
Vice-president of the Spanish Society of Gynaecology and Obstetrics (SEGO).

What needs to be done to keep the mouth healthy during pregnancy?

The most important action to prevent caries and gingivitis is to perform a thorough brushing of the teeth using a fluoride toothpaste at least twice a day and to carry out interdental hygiene at least once a day. Women with a greater predisposition to caries and gum diseases should use a mouth rinse with fluoride and antimicrobial agents.

If my mouth is healthy, does this help my baby's health?

When the baby has been born, the bacteria that provoke caries can pass from the mother's mouth to that of the baby. These germs are easily transmitted through the spoon, the bottle, and the dummy (pacifier). Because of this, it is important that the mother's mouth is healthy.

Dental treatment during pregnancy: overcoming the myths

Nearly all hygiene procedures and dental treatments can be performed without problem on pregnant women, although there are exceptions and certain precautions should be taken.

What must be taken into account?

Treatments during the second and third term should be limited to the minimum, with simple operational treatments and short durations.

The second term of pregnancy is the safest period for providing normal dental care.

Some 50% of women with gingivitis before pregnancy can suffer a worsening of their periodontal health during gestation

It is most important to avoid active disease. The removal of any focus of infection should be carried out before the pregnancy, if this is possible. But if it emerges, it should be tackled with the appropriate measures at any point during the pregnancy.

→

"Hormonal changes in the woman, and especially during pregnancy, generate alterations in her periodontal health that we must keep at bay in an appropriate way"

Francisco Vijande
Spokesperson, SEPA
management board, collaborating
professor in the master's degree
in periodontology and implants
at the Complutense University
of Madrid.

Pregnancy, by itself, does not cause gingivitis

The pregnant women with gingival bleeding and gum discomfort must treat her periodontal disease to minimise the risk that this could mean for the foetus. Radiographs and complex treatments will be avoided, but initial disinfection to remove the inflammation must be performed, with lengthier treatments after childbirth.

During pregnancy and breastfeeding there are important restrictions on the use of medications, but there is not usually a contraindication for the employment of an anaesthesia if this is needed for a causal or emergency treatment, which does not pose any risk to the foetus.

Can I take medication during pregnancy?

The use of medication during pregnancy must be totally controlled by the referring physician.

In general, the use of antibiotics is restricted because of their possible effects on the foetus. Penicillin, erythromycins, and cephalosporins seem to be groups of low-risk antibiotics but, despite this, their use should be limited to emergency situations and under medical supervision.

Paracetamol is the painkiller that is most often used in pregnancies, with analgesic, antipyretic, and minimally anti-inflammatory effects. No studies have indicated risk for the pregnant woman or the foetus.

If one is planning a pregnancy, it would be best to have an oral-health check-up first to detect and resolve any disease that is present

On the contrary, ibuprofen should be avoided because it has profound effects on neonatal circulation.

The use of chlorhexidine in any of its forms (paste, gel, or mouth rinse) is totally safe and can be used during pregnancy if necessary. It does not have synthetic absorption and its antibacterial effects will be limited to the mouth. ■

THE OPINION OF THE EXPERTS

"Between 60% and 75% of pregnant women have gingivitis, but it has been observed that the influence of hormones at the level of the mouth can be reduced with good oral hygiene"

Héctor J. Rodríguez Casanovas
Dentist, periodontist.

GLOSSARY

1. **Bacterial biofilm:** bacterial plaque
2. **Microbiota:** bacterial flora
3. **Pregnancy Epulis:** cyst that forms in the gums or the soft parts of the mouth
4. **Pre-eclampsia:** a pregnancy complication that causes arterial hypertension (high blood pressure), damage to the kidneys, and other associated conditions

Diabetes has a woman's name

MORE THAN 199 MILLION women today live with diabetes, a figure that is forecast to increase to 313 million in 2040. It is estimated that two in five women with diabetes are of child-bearing age, which implies more than 60 million women in the world. Apart from other effects on health, the presence of diabetes in a woman has significant repercussions at the reproductive level, as it is more difficult to conceive a child and there is an increased risk of negative pregnancy outcomes. Without prenatal planning, Type 1 and Type 2 diabetes can result in a greater risk of maternal and child mortality and morbidity.

In addition, one in seven births is affected by gestational diabetes, a serious threat. Many women with gestational diabetes experience pregnancy complications, such as increased blood pressure, overweight babies, and complications during delivery. A significant number of women with gestational diabetes will also later develop Type 2 diabetes: half of women with gestational-diabetes antecedents can develop Type 2 diabetes between five and 10 years after giving birth.

ABOUT 1 IN EVERY 7 BIRTHS ARE AFFECTED BY PREGNANCY DIABETES

THE IMPORTANCE OF ORAL HEALTH

Diabetes and periodontitis are great allies. If you are a person with diabetes and do not take care of your mouth, your diabetes will worsen; and vice versa: if you have gingivitis, there is a 40% risk of suffering diabetes, and if you have periodontitis, the risk rises to 50%.

Because of all this, if you are planning to get pregnant, it is important that you visit your dentist for an oral check-up. Even more so when it is known that during pregnancy a mouth that is not looked after can affect the growth of the baby and its health; in addition, if you have uncontrolled periodontitis your risk of suffering gestational diabetes increases.

What you should not forget

- **During pregnancy, 2 out of every 3 women** present inflammation in their gums, a preventable situation which requires periodontal treatment.
- **With correct oral health in the mother** before she becomes pregnant, many of the oral problems typically associated with pregnancy can be avoided.
- **The health of the mother's mouth** is a fundamental aspect of the good development of the pregnancy.
- **Pregnancies with periodontal disease** have more risk of suffering pre-eclampsia, premature births, and low birthweight.
- **Do not hesitate to ask advice from your trusted dentist** about how you should maintain oral health during pregnancy and even before conception.
- **Prepare your mouth to face** the pregnancy period in good health.

"The woman with diabetes who uses oral contraceptives must be aware that they can increase her glucose levels and the risk of bleeding gums"

Cristina Serrano
Secretary of the joint working group of SED and SEPA, Diabetes and Periodontal Disease.

It is estimated that one in four people with dental implants in Spain have peri-implantitis. Adopting some basic measures can prevent its appearance.

The prevention of peri-implantitis begins at home

SECTION CO-ORDINATED BY:

Gloria Calsina
Certified in periodontology. University of Southern California, USA

PERI-IMPLANTITIS is an inflammatory process that affects the tissues that surround a dental implant, which provokes the loss of supporting bone and, in this way, increases the risk of implant failure.

It is estimated that today 40% of implants can suffer a superficial inflammation of the gums (mucositis) and about 20% of patients in whom implants have been placed could suffer a loss of implant-supporting bone and develop peri-implantitis, in an average time of between five and 10 years. These figures have not stopped growing in recent years in Spain and the prediction is that they will continue to increase.

In the face of this situation, the best remedy is prevention, which starts at home, and the establishment of some simple hygiene measures that are easy to carry out.

An implant can last for life ... if it is looked after

A dental implant can last a lifetime, but only if it is looked after properly. Implants offer some excellent results in the majority of patients, but in some cases peri-implant diseases can develop and the implants can be lost.

To avoid this situation, dental professionals and patients have the shared responsibility of looking after implants to prevent the appearance of complications around them to ensure that our treatments are successful over the long term.

Tasks of the dental team

As a first measure, it is advisable during dental check-ups to start a protocol for all patients who are going to receive an implant. The oral-health team removes the calculus (tartar) and decontaminates the implant, and recommends that the patient use antiseptic and antibiotic mouth rinses (which the patient must use according to the instructions given in order to improve the effect and to avoid generating antibiotic resistance).

The whole dental team must be involved in providing the patient with adequate hygiene instructions.

It is also advisable to have protheses that allow good access for oral hygiene

THE OPINION OF THE EXPERTS

Agustín Casas
Collaborating professor of courses of continuous education in periodontology at the Complutense University of Madrid.

"The prevention of peri-implantitis must involve teamwork: patients must have a proactive attitude and the professionals must facilitate this"

Jaime Alcaraz
Postgraduate in periodontology. Complutense University of Madrid.

Up to 40% of people with dental implants have mucositis and more than 20% present peri-implantitis

around the implants; this is because 74% of implants with peri-implantitis do not present decent access for good oral hygiene.

Recommendations to follow at home

These measures should accompany others that patients should follow:

- **Identify the implants in the mouth:** they should know how many implants they have and where they are placed, to facilitate their specific cleaning.
- **Regularly carry out** correct dental and implant hygiene: at least twice a day. Implants must be looked after and cleaned to the same extent as natural teeth.
- **Avoid and control risk factors** that can predispose to suffering peri-implantitis, such as tobacco (smoking multiplies the risk of implant failure).
- **Twice a year have** a maintenance treatment of teeth and implants with their hygienist or dentist.
- **Use night guards** for sleeping if they have bruxism (unconscious habit of clenching or grinding the teeth).

With what?

To clean teeth and implants one should use:

- **Toothbrush:** it can be manual or electrical (rotational or sonic) or alternating with both, focusing above all on the union of the tooth and implant with the gum.
- **Interdental brush:** must be passed through the spaces between implants or teeth and below the prothesis.
- **Dental floss:** in the tightest spaces.
- **Irrigation devices** with pressurised water: can be very useful in patients with multiple restorations or complex prosthesis on teeth and implants.
- **Anti-plaque mouth rinses:** if these have been recommended by their dentist. ■

"Information is key to maintaining health: efficient hygiene, how to reduce risk factors, and compliance with regular visits to the professional"

Nuria Vallcorba
Honorary trustee of the SEPA Foundation and the Foundation of the Catalan Society of Dentistry.

"When we start a treatment with implants, the patient must be informed of the importance that preventing peri-implantitis starts at home"

Lucía Barallat
Associate professor of the Department of Periodontology of the International University of Catalonia.

"The long-term success of dental implants depends on a change of habits by the patient and regularly attending the dental clinic"

Caries and periodontitis represent the main causes of tooth loss in the world, given their high frequency and infectious origin.

Caries and periodontal disease, the main threats to your oral health

SECTION CO-ORDINATED BY:
Desirée Abellán
Associate professor, master's degree in periodontology. International University of Catalonia

IN ORDER TO DEVELOP, Both caries and periodontitis require the presence of bacterial biofilm formed by multiple microbial species.

Dental biofilm

Biofilms are communities of micro-organisms that grow saturated in an extracellular matrix and which are attached to an inert surface of a living tissue. The properties of these bacterial communities are greater that the sum of the properties of these same bacteria on an individual basis.

These interactions can be beneficial between the members of the bacterial community and the host (symbiosis) or they can imply an imbalance in the relationship with the host that can be prejudicial to health (dysbiosis).

In conditions of good periodontal health, there is a symbiosis between a biofilm associated with health and a response provided by the host. In periodontal disease, there is a dysbiosis in susceptible individuals, with an inflammatory response that produces damage to the connective tissue and loss of alveolar bone. Caries are the fruit of interactions that take place between the dental structure, the biofilm formed on the tooth surface, sugars in the diet, saliva, and genetic factors.

Acidogenic bacterial species generate conditions of low pH, inhibiting the action of substances that protect structures such as dental enamel.

Microbial profiles

Until now it was thought that the microbial biofilms associated with health were composed of bacterial communities of low diversity. However, recent studies suggest that that diversity of these biofilms is greater than had previously been thought. It is still not possible to define a specific microbial profile because biofilms vary considerably between individuals, location, and the susceptibility of each one of them; in addition, there are variations over the course of life through ageing, anatomical and ecological changes, and variations in the functioning of the immune system.

Caries result from interactions between the dental structure, the biofilm formed on the surface of the tooth, sugars in the diet, saliva, and genetic factors

Biofilms associated with caries have properties that reflect the acidogenic environment of the micro-organisms.

As well as *Streptococcus mutans* and *Lactobacillus*, the presence of *Bifidobacterium dentium* and *Scardovia wiggsiae* has been related to early caries in children.

When periodontal disease is present, the bacterial biofilm is composed of Gram-negative species; among the main periodontal pathogens are *Porphyromonas gingivalis, Treponema denticola, Tannerella forsythia, and Aggregatibacter actinomycetemcomitans*.

→

THE OPINION OF THE EXPERTS

Elena Figuero
Department of Dental Clinical Specialities. Faculty of Dentistry. Complutense University of Madrid.

"Caries and periodontal diseases are the most prevalent diseases in human beings, in which bacteria play a fundamental role"

In many people caries and periodontitis appear together, which significantly worsens their oral health

"Prevention goes far beyond the visit to the dentist. An association of dental professionals with other health professionals is necessary"

Ignacio Sanz Sánchez
Associate professor of periodontology. Complutense University of Madrid.

What I eat matters, What I do matters

Saliva constitutes the main source of nutrients for the development of the biofilms that are at the origin of caries and periodontal diseases.

In conditions of health, there is an equilibrium between the low production of acid and the compensatory generation of alkalosis, which results in a neutral pH. This creates conditions that help maintain a healthy microbiota in the tissues of the oral cavity.

INFLUENCE OF NUTRIENTS

Sugars in the diet are another main source of nutrients for bacterial species. Sucrose is considered as one of the most cariogenic[1] carbohydrates in the diet, thanks to its acidic fermentation.

In addition, the lack of micronutrients such as Vitamin D, calcium, phosphates, and Vitamin K has a negative impact on dental mineralisation and the quality and size of teeth, which can influence the development of dental caries throughout the course of life.

In periodontal disease, the crevicular fluid[2] is the source of the main nutrients. The absence of micronutrients such as Vitamin C and low levels of calcium, magnesium, antioxidants, and docosahexaenoic acid (DHA) are associated with the appearance of periodontal disease, while the lack of Vitamin B12 is related to a greater progression of gum diseases.

At the level of macronutrients, evidence increasingly suggests that a diet rich in carbohydrates increases the risk of inflammation and gingival bleeding, above all in adolescents.

ACQUIRED RISK FACTORS

Hyposalivation, smoking, and certain medical conditions (such as poorly controlled diabetes or cognitive deterioration) are among the main acquired risk factors for the development of dental caries.

Risk factors associated with periodontal disease include some cardio-metabolic conditions (such as poorly controlled diabetes, metabolic syndrome, obesity, and sleep apnoea), rheumatic diseases, hormonal changes in women, medication that reduces the flow of saliva or encourages gingival overgrowth, and the consumption of tobacco.

THE OPINION OF THE EXPERTS

"The prevention of caries and periodontal disease involves control of the bacterial biofilm, essential for improving the patient's oral and general health"

Antonio Aguilar-Salvatierra
Professor of the master's degree in periodontology and implants at the University of Granada.

What you must avoid

- Frequent consumption of sugars, carbonated drinks, and acid-rich food.
- Poor oral hygiene.
- Low oral pH.
- Certain medications, especially those that incorporate added sugar among their excipients and those that reduce the flow of saliva.
- Crowded teeth.
- Lack of fluoride.

→ Genetically, the available scientific evidence today supports a moderate role of the genetic component as a cause of periodontal diseases and susceptibility to caries. However, this genetic risk is seen to be modified by lifestyle and environmental factors. In periodontal disease the genetic factor is greater.

An interesting relationship

Although caries and periodontal diseases are pathologies of infectious origin which occur in the same environment, there are important differences which mean that they are completely different diseases.

Nonetheless, it has been seen that patients who present retraction of the gums, as a result of periodontal disease, have a greater risk of experiencing caries in the roots of the teeth.

Recently, the European Federation of Periodontology (EFP) launched an information campaign to call social and institutional attention to the growing socioeconomic and healthcare impact of caries and periodontal disease.

The initiative is supported by the various national societies that make up the EFP, in which the Spanish Society of Periodontology plays a leading role. In addition, a new web portal (perioandcaries.efp.org) has been created which provides information on this topic.

The lack of micronutrients such as Vitamin D, calcium, phosphates, and Vitamin K have a negative impact on dental mineralisation and the quality and size of teeth

Recommendations

- Motivate parents to brush children's teeth twice a day from the moment the first milk tooth appears.
- Encourage brushing twice a day, for at least two minutes, with a fluoride toothpaste.
- Instruct parents in the importance of using drinks without sugar from birth onwards.
- Increase awareness of the risk of sugar-rich diets rich and medication that contains sugar for caries and periodontal disease, especially for young and elderly people.
- Limit the amount and frequency of sugar consumption.
- Motivate the use of sugar-free drinks, mint, and chewing gum.
- Include oral health in prevention programmes in patients with diseases such as diabetes, obesity, metabolic syndrome, and cardiovascular diseases.
- Encourage awareness in nursing homes of the impact on oral health of diets high in sugars and low in antioxidant micronutrients. ■

"An inadequate diet and bacterial oral biofilm are risk factors for having caries and periodontal disease"

Rosario Garcillán
Professor of preventive and community dentistry and vice-dean of the degree course. Faculty of Dentistry, Complutense University of Madrid.

GLOSSARY

1. **Cariogenic:** that which encourages the development of dental caries.
2. **Crevicular fluid:** inflammatory oozing which comes from the connective tissue, which flows to the oral cavity and which acts as one of the defence mechanisms of the gum.

Flying and dental pain are a common combination, which can often be avoided. Following some practical advice, you can ensure that your (good) oral health travels with you.

How to avoid 'toothache' when you fly

SECTION CO-ORDINATED BY:
Gloria Calsina
Certified in periodontology. University of Southern California. USA

ATMOSPHERIC PRESSURE in a plane changes constantly during a flight and these changes affect structures of the body that are filled with air and covered with rigid walls, such as the spaces of the middle ear, the nasal cavities of the cranium, and the mouth.

Changes in pressure occur, above all, during the plane's ascent and descent, and it is at these times when "plane pains" most often occur. Sucking sweets, chewing gum, yawning, and swallowing saliva are some simple remedies to try to even out these pressures.

Barodontalgia

These changes in pressure can also appear in cavities in the teeth, which have been provoked by the presence of caries or a defective filling.

The pulp chamber within the crown of the tooth is a tissue with many sensitive nerve endings and the walls that surround it are very hard. This means that, when faced with an increase or decrease in atmospheric pressure, the pulp is unable to adapt itself to that variation in pressure or balance it with its internal pressure, which can seem like a dental lesion and can provoke an intense tooth pain (barodontalgia).

If you catch a plane and have toothache, you can take a painkiller half an hour before flying

Another common phenomenon is odontocrexis. In this case, the passenger has the sensation that a tooth is going to 'explode', although this is impossible.

The pain can have different intensities, depending on the amount of gas trapped; it is caused by the expansion of gas that resides below badly made restorations or crowns with gaps.

Prevention before flying

Having untreated dental disease can provoke strong tooth pains during a flight, hence the importance of evaluating your mouth's state of health and treating any oral disease before taking a flight. This is the best form of prevention.

But, as well as this, follow these practical tips:

- Visit your dentist for a mouth examination.
- Treat your dental conditions.
- If you have recently had surgery on the mouth, wait at least 24 hours before catching a plane and carry a packet →

Sucking sweets, chewing gum, yawning, and swallowing saliva can help prevent dental pain produced by changes in atmospheric pressure

of dressings to be able to apply pressure on the zone in case of bleeding.

- If you have fever or detect signs of infection, such as swelling or reddening, visit your dentist as a matter of urgency.
- If your dentist agrees, taking painkillers can alleviate or prevent the pain. You should take them 30 minutes before take-off.

If you have toothache, do not drink hot or sugary drinks during the flight

- Avoid hot coffee or tea during the flight, as well as sugary drinks (such as juices or soft drinks).

What to do during the flight?

When faced with a "plane toothache" there is little that can be done to remove it (neither chewing nor swallowing improve the situation).

You can take a painkiller, although this does not always work, and see a dentist as soon as possible after you land to avoid these pains on the return flight. ■

Why is this happening to me?

1 The presence of caries destroys the tooth slowly and creates microscopic holes through which air enters into the tooth and becomes trapped there. When there are changes in pressure in the plane, this trapped air expands during the flight as a result and, not finding a way out, pressures the dentine or the nerve provoking an intense toothache.

Sometimes it can be radiated, provoking pain in the whole of the side of the face, if it is not possible to match the pressure in the cabin.

2 Defective dental fillings can trap air.

3 In certain dental reconstructions, air can be left trapped and they are unable to maintain the same pressure as the plane cabin.

4 Incomplete root-canal work tends to house gas in the interior of the affected tooth.

5 The presence of periodontal abscesses and recent dental extractions can cause pain when flying.

SECTION CO-ORDINATED BY:
Assumpta Carrasquer
Professor of the master's degree in periodontology and implants. Faculty of Dentistry of Valencia.

Prevention is much cheaper than treating diseases

VALENTÍN FUSTER
DIRECTOR GENERAL OF THE CARLOS III NATIONAL CENTRE OF CARDIOVASCULAR RESEARCH

You have been leading the CNIC for more than a decade. How do you evaluate the Centre's progress during this period?
In these recent years, the CNIC has consolidated itself as a centre of excellence. Innovation, efficiency, co-operation, and enthusiasm are some of the characteristics that define us.

What would you highlight as this Centre's main research, clinical, and/or social and healthcare contributions?
One of the CNIC's priorities is the transfer of the results of research to society: that is to say, returning the investment to society by translating it into profit. Out of the many projects in which the CNIC is involved, I would highlight those that, for example, will have an impact on reducing waiting lists or on cutting the costs of hospitalisation and treatment.

Thus I would highlight the PESA-CNIC-Santander study (which evaluates the presence and development of sub-clinical atherosclerosis thanks to the use of innovative imaging techniques and to its association with various molecular and environmental factors), the public-private collaboration that has resulted in the first combined pill approved in Europe for secondary cardiovascular prevention, the development of a patent for magnetic resonance, and the biomarker that we have developed and patented for the diagnosis of myocarditis.

The research that we carry out at the CNIC not only has repercussions in the healthcare of the general population, but also produces an economic return that makes it possible for us to continue to invest in projects and, in short, in mobilising the country's economy.

How would you categorise the current state of Spanish cardiovascular health?
In spite of the advances of medicine in recent years, cardiovascular diseases remain the main cause of death in the whole world, passing from affecting only the richest nations to also include developing countries, where it is responsible for 80% of deaths. And it is in these countries where it is reaching epic proportions, although in Spain we cannot afford to be relaxed.

Taking care of our health is a question of individual responsibility and a general change in attitude and lifestyle

What are the main threats around cardiovascular health for Spaniards?
The cardiovascular risk factors are well known but it is never wrong to recall them. There are seven: age (the only one that is not modifiable), obesity, high blood pressure, high cholesterol, diabetes, smoking, and a sedentary lifestyle.

It is important to prevent arteriosclerotic disease, and this is achieved by treating or modifying these risk factors.

In terms of genes, there is no doubt that out of 100 smokers 60 will suffer a heart attack and 40 will not. This is where genetics plays a role, but it cannot be claimed that this is the cause of the disease or that it determines those who have risk factors. Of course, there are pathologies that can give rise to a heart attack from a genetic point of view, but in general they occur because of these indicated risk factors.

In Spain, we cannot be relaxed about the current state of cardiovascular diseases

Without doubt, prevention is the key to success in this area. But are there adequate policies and social awareness to encourage healthy lifestyle habits?
Taking care of our health is a question of individual responsibility and a general change in attitude and lifestyle. And it is necessary to emphasise a fundamental message: it is never too late to take care of yourself. Science has shown that the best age for the promotion of health is between three and six years. This has led us to launch initiatives such as the *Programa SÍ!* [YES! Programme] and other similar initiatives that have even arrived in the USA.

A person who is not able to take care of their gums will also not be able to follow minimal health guidance, and vice versa

It is possible that failure in prevention policies is related to the fact that we do not believe ourselves to be vulnerable, because it is easier for us not to think of the worst.

However, it is inevitable. We have no sense of possible disease and we choose to delude ourselves and not to listen to anybody. And we have seen that at all ages. We know that these risk factors act in a silent way over the long term. That is the big problem, the reason why we do not get there in time. In western societies, only 2% of the population does not present any risk factor.

We know how to modify them – but do we do it?

→

"We must make a commitment to promote oral health"

The voice of your heart

BORN IN BARCELONA in 1943, Valentín Fuster has become one of the most well-known and influential cardiologists in the world. His research, clinical, and academic work is combined with his capacity for leadership, campaigning, and team training, which provides him with some extraordinary credentials for raising awareness, bringing interests together, and encouraging the consensus of politicians, health institutions, the pharmaceutical industry, and the general population.

Many people know him as the "apostle of the heart" for his research and campaigning work.

Valentín Fuster has become the true voice of the heart, reaching the awareness of all those concerned about the mistreatment by today's society of the real motor of human life.

Today, he combines his roles as director general of the Carlos III National Centre of Cardiovascular Research (CNIC) in Madrid, director of the Cardiovascular Institute, and Physician-in-Chief of the Mount Sinai Medical Center in New York. In addition, he recently took on the responsibility of being president of the Health Advisory Council of the Ministry of Health, Social Services, and Equality. These are only some of the most recent roles of an extraordinary man, who has accumulated during his successful career an unsurpassed curriculum vitae.

His vision of health promotion has been considered during the most recent World Congress of Cardiology as the roadmap that must be followed to put an end to the unsustainable pandemic of cardiovascular diseases.

As fruit of this global recognition, Fuster has directed a committee of experts that has produced the report *Global Health and the Future Role of the United States*, which identifies challenges and priorities in health and makes 14 recommendations and priority areas for the government of the USA and other agents involved in health.

It is never too late to take care of yourself

Within these healthy lifestyle habits, what importance does oral health have in the cardiovascular area?
Someone who is not capable of looking after their gums, will also not be able to follow some minimal health guidance, and vice versa.

Because of this we must make a commitment to promote oral health, as this will incentivise the modification of risk factors shared with other diseases.

Is it possible to establish a link between oral health and cardiovascular health?
There is more and more evidence that the first-order cardiovascular risk factors, such as arterial hypertension, obesity, diabetes, hypercholesterolemia, sedentarism, and smoking are also responsible for a large amount of diseases of the teeth and gums.

Is the relationship between the two a casual one?
The relationship between cardiovascular disease and periodontal disease is not casual.

On the one hand, there is scientific evidence that associates both diseases and which shows the coincidence of the risk factors that are behind these diseases. But – and this is more important – there are social and behavioural reasons that have greater importance, justifying the existence of a common nexus.

What could be the main pathological mechanisms involved in this relationship between oral health and cardiovascular health?
Although we know that oral infections have a certain cardiovascular repercussion, we still do not know the degree or intensity of this association. What is clear is that if cardiac risk factors are modified this also reduces the risk factors for suffering periodontitis.

Should maintaining good oral health also be included as an essential measure within healthy lifestyle habits to avoid a cardiovascular disease?
Arterial hypertension, obesity, diabetes mellitus, hypercholesterolemia, sedentary lifestyle, and smoking are perfectly identified

Valentín Fuster with Dolors Montserrat, Minister of Health, Social Services, and Equality.

There is more and more evidence that the main cardiovascular risk factors are also responsible for a large amount of diseases of the teeth and gums

as first-order cardiovascular risk factors, but they are also responsible for a large amount of periodontal diseases.

Because of this, if we tackle these risk factors early and correctly not only will we prevent cardiovascular disease, but we will also contribute to reducing periodontal diseases.

On the other hand, the use of an intensive periodontal therapy to tackle a serious disease of the gums has vasodilatory effects, positively modifying the endothelial condition that is characteristic of the most serious periodontal processes.

There are very interesting studies that show how the administration of lipid-lowering medications (statins) reduces inflammation of the gums and periodontal disease. But, being realistic, if it is already difficult to make the population understand that obesity and tobacco can provoke serious cardiovascular problems, how can we make them accept, for instance, that not cleaning their teeth and gums daily can also cause some harm in the cardiovascular sphere?

What would you propose as the main objective in cardiovascular health for the coming years in Spain?
We must be responsible for our own health, including cardiovascular health. We must keep the six modifiable risk factors in mind and change them if this is necessary. ■

Phrases that raise consciousness

EACH INTERVIEW with Valentín Fuster, each participation in a scientific or campaigning activity, is a cascade of sentences that provoke reflection. These are just some of his most recent statements that have a great importance for society and healthcare:

"We are killing the heart"

"Only 2% of people aged over 50 have no cardiovascular risk"

"We know much better what disease is than what health is"

"Prevention is much cheaper than treating diseases"

"75% of people aged 40 have signs of disease"

"Cardiovascular disease starts at 15 years of age"

"We are learning that children have much more impact on the behaviour of parents than parents on children"

"It is important to start the day well, taking more than 20% of total energy"

"Obesity, high blood pressure, diabetes, high cholesterol, poor behaviour, lack of exercise, and inadequate nutrition. These are the seven risk factors that are added to genetics when developing cardiovascular diseases"

NUEVO

Oral-B

Cepíllate como un dentista

¿EL SECRETO DE UNA BOCA MÁS SANA?

ENCÍAS REVITALIZADAS Y ESMALTE FUERTE

Nuestro día a día, la dieta o la salud en general son factores que, si no cuidamos, pueden **irritar las encías o debilitar el esmalte**. Dos de los factores que mayor causa de **problemas bucodentales provocan**.

Para ayudarte, Oral-B ha desarrollado el dentrífrico **Encías & Esmalte Repair**. Una pasta de dientes que ha sido probada clínicamente como la mejor de Oral-B para ayudar a **revitalizar** las encías y a **fortalecer** el esmalte en 2 semanas*.

Todo gracias a su **tecnología ActivRepair**™ que actúa de forma localizada en la línea de las encías con una doble acción sobre esmalte y encías.

ALIMENTACIÓN: intenta evitar la ingesta de comidas o bebidas muy ácidas que pueden debilitar y decolorar el esmalte.

ESTILO DE VIDA: cepillate los dientes al menos dos veces al día, durante 2 minutos. Y recuerda no ejercer mucha presión para no estropear el esmalte ni dañar las encías.

SALUD: recuerda que si sufres diabetes o estás embarazada tienes mayor riesgo de desarrollar problemas de encías y esmalte.

AYUDA A MANTENER TU BOCA Y TU CUERPO SANO

*Testado en laboratorio sobre esmalte debilitado.

In order for any orthodontic treatment to be really satisfactory, the patient needs to have healthy gums. Before orthodontics, periodontics.

Before orthodontics, healthy gums

SECTION CO-ORDINATED BY:
Desirée Abellán
Associate professor, master's degree in periodontology. UIC Barcelona

IN RECENT DECADES, orthodontic treatments have become part of the integrated treatment of many adult patients, many of whom may have some degree of periodontal disease. In periodontal patients, it is possible to carry out this kind of treatment, provided that the disease is controlled and a healthy periodontium is present, as well as a good control of bacterial plaque.

Orthodontic treatment in patients with a reduced healthy periodontium does not aggravate the periodontal condition or increase the risk of periodontal recurrence during the orthodontics. However, if inflammation is not controlled during the orthodontic treatment it could accelerate periodontal destruction.

A very necessary action

Because of this, before starting any orthodontic treatment, a full periodontal examination should be carried out to check the absence of periodontal pockets, the absence of bleeding on probing, and a minimal accumulation of bacterial plaque.

In patients who require periodontal treatment before carrying out an orthodontic treatment, it is advisable to wait six months after the completion of the latter to start the movement of teeth in completely healed periodontal tissues.

In periodontal patients, it is possible to perform orthodontic treatments, provided that the disease is controlled

Patients with moderate or severe periodontitis can suffer, as a result of the disease, the loss of teeth, pathological dental migration, malposition, and malocclusions that can contribute to an additional deterioration of the dentition.

Because of this, orthodontics can often be an essential tool to stabilise occlusion, align the teeth, and facilitate plaque control, as well as to improve aesthetics.

Some considerations

The movement of orthodontics itself does not imply insertion loss[1] or gingival recession. However, in the presence of thin gums, dental movement towards the outside can cause dehiscence[2] or bone loss that encourages discomfort when brushing, and this can provoke a greater accumulation of plaque responsible for insertion loss and recession. In contrast, in the presence of thick gums, movement outwards will not increase the risk of developing gingival recessions.

Where there is an inadequate amount of gum but lingual movement of the tooth, there can be a resolution of the bone dehiscence and an increase of the thickness of the gingival tissue.

In these cases, controls are carried out during the orthodontic treatment and there will be an evaluation of whether it is necessary to carry out mucogingival therapy during or after the movement of the teeth.

Within the orthodontic movements that are performed, there are some of low risk and others that imply greater problems.

GLOSSARY

1. **Insertion loss:** loss of support of the teeth.
2. **Dehiscence:** surgical complication in which the wound separates or suddenly opens, generally along a suture line.
3. **Clinical crown:** part of a tooth that is not covered by the supporting tissues.
4. **Keratinised gum:** gum with keratin.
5. **Edentulous:** without teeth.

Low-risk movements

Extrusion: is a predictable movement to level bone margins or increase the clinical crown.[3] It can remove the presence of angular bone defects.

Molar straightening: angular defects associated with mesialised molars will be corrected by straightening without implying a change in the levels of insertion.

Lingualisation movement: this type of movement can in general improve the clinical situation where there is inadequate keratinised[4] gum.

Before starting any orthodontic treatment, a full periodontal examination should be carried out

High-risk movements

Intrusion: these movements can be performed in periodontal patients provided that there is a healthy periodontium and excellent plaque control.

Mass movement to narrow edentulous[5] zones: can cause vestibular or lingual bone deshisence. To avoid this type of complication, it may be necessary to carry out surgery to augment the bone ridge before orthodontic treatment.

Vestibular inclination: implies a thinning of the vestibular cortical.

Vestibular inclination with intrusion: implies the combination of two risky movements, the risk of insertion loss increases in the presence of bacterial plaque.

Derotation of prominent teeth: may imply the formation of bone dehiscence. ■

What periodontal maintenance to perform?

During orthodontic treatment, it is recommended that periodontal patients are adequately monitored every 3–4 months through maintenance or periodontal-support visits.

During these visits, as well as removing the deposits of plaque and/or calculus outside and within the gum, in areas where it is required, checks are performed on the presence of bleeding on probing and the possible appearance of periodontal pockets, recessions, or gum overgrowth.

These visits also serve to control and help improve the daily plaque control that the patient performs at home every day. After orthodontic treatment, the maintenance protocol will be carried out in relation to the individual risk of each patient.

Once the orthodontic treatment has concluded, the placement of a permanent fixed retainer to prevent relapses in the positioning of teeth is recommended.

Braces: between the benefits and fashion

Correcting a deficient bite or dental malocclusion has taken on a special social interest in Spain, with braces the most well-known resource. Their benefits are clear, but there is also an inevitable element of fashion.

SECTION CO-ORDINATED BY:
Nerea Sánchez
Master's degree in periodontology. Complutense University of Madrid

THE OROFACIAL REGION, that is to say the area of our face where the mouth is located, is an area that habitually concerns us as it is fundamental to interpersonal relationships, being the source of physical, vocal, and emotional communication. But not only that, the aesthetic importance of the orofacial region is immense, as the smile is an important calling card.

The aesthetic importance of the orofacial region is immense, as the smile is an important calling card

Today, having teeth that are well aligned and placed has become important for the aesthetic element, for functional reasons, and to improve the individual's quality of life. As a result of all this, orthodontics has emerged both for children and for young people and adults. This speciality is concerned with preventing, diagnosing, and treating disorders in the form, position, and relationship of the teeth and the maxillaries (the bone structures that house the teeth), using various pieces of apparatus that exert controlled force to move the teeth and, in cases where growth has had been completed, the bones.

Orthodontic treatment

Orthodontic treatment seeks fundamentally to achieve in a gradual way the alignment of the teeth and an adequate degree of engagement between the teeth of the superior and inferior arches. Among other benefits, it improves the smile, facilitates the chewing of food (fewer digestive problems), optimises daily dental hygiene (easier and more efficient), reduces the risks of caries and periodontal diseases, reduces dental wear, and facilitates a possible later placement of implants.

There are both fixed and removable orthodontic treatments. The fixed technique employs elements that are cemented to the teeth (brackets and bands), joined together using metallic arch wires.

The removable technique is based on units that patients themselves can put in and take out.

Brackets: What are they and what are they for?

Brackets are devices used in the technique of "fixed orthodontics" which are attached to each tooth.

All of them are connected by means of a metallic arch, which is what is used to exert the controlled force on the brackets and gradually bring about the movements planned by the orthodontist.

The dental practice should be visited regularly (usually once a month) so that

THE OPINION OF THE EXPERTS

"There is a great demand among adult patients for more comfortable, aesthetic, and hygienic orthodontic solutions, such as removable transparent aligners"

Eva M. Rosa
Periodontist.

the specialist can check and modify the forces exerted, the arches, and the position of the brackets.

Brackets are generally cemented to the frontal part of the teeth and can be metallic or of transparent materials (such as sapphire). They can also be attached to the inside face of the teeth ("lingual orthodontics").

A fashion, with risks

In many countries, treatment with braces has gone from being a therapeutic strategy that children accepted grudgingly to becoming a fashion trend. Brackets and various colours of the rubber bands that join the arch have become a distinctive feature of the youthful look. However, in certain countries (above all Asian and Latin American), this furore has driven the use of false braces with a solely aesthetic objective.

They are sold over the internet and in the street and are placed in beauty salons,

Brackets have become a distinctive feature of the young "look"

the brackets stuck to the teeth with glue or inserted with wires between the molars. This fashion has become a real problem, to the extent that, in countries such as Thailand, the government has penalised the sale of these false devices. ■

Before placement of braces, you should...

- **Visit the dentist** to rule out other oral problems.
- **Treat any caries.**
- **Have healthy gums.**
- **Be instructed and sufficiently motivated** for the performance of appropriate plaque control with tooth-brushing and interdental hygiene.

And during treatment, you must...

- **Follow appropriate** oral-hygiene habits.
- **Reduce the consumption of sugars.**
- **Visit the dental practice** to check for possible caries and the health of the gums (every 6 months).

"Spain is the country in the world in which orthodontics with transparent aligners has grown the most, which reflects the population's interest in enjoying a healthy and aesthetic smile"

Javier Lozano
Teacher of the European Master of Aligners.

A good diet not only allows strong and healthy teeth, resistant to bacterial attack, but enables us to have healthy gums and a healthy mouth, without disease and functioning well.

Your mouth demands a healthier diet

SECTION CO-ORDINATED BY:
Olalla Argibay
Master's degree in periodontology and implants at the University of Santiago de Compostela

ACCORDING TO THE World Health Organization's definition, oral health is a fundamental aspect for enjoying good health and good quality of life.

Achieving the aim of having a healthy mouth depends on many factors, with diet one of those that has the biggest impact. This is because what we eat says a lot about ourselves and does much to our oral health (for good or ill).

Classic programmes for the prevention of oral diseases emphasise techniques of oral hygiene, fluoridisation, regular check-ups, sessions of professional oral hygiene, and, of course, they insist on a healthy diet, highlighting the role that certain nutrients can play in the maintenance of health and the prevention of diseases in the oral cavity.

Nutrition and dental maturation

Already from the first moments of life, what we eat has a huge influence on our oral health. In pregnancy itself, the foundations are laid in the foetus for the future formation of temporary teeth, and the mother's diet is fundamental. Thus, the provision of a correct contribution of nutrients should begin this early if good oral health is to be assured, both for the mother and for the foetus. It is essential to achieve an appropriate intake of nutrients that cover the needs of the organism and guarantee a correct development of the various structures.

When the body does not receive adequate amounts of vitamins, minerals, and other nutrients that are needed to maintain the health of the tissues and the functioning of the organs, there is a situation of malnutrition, which also affects the teeth. Various studies have related malnutrition with changes in the pattern of replacement teeth in children, showing a significant association between the delay in the eruption of the teeth and a poor nutritional state.

The risk of caries

The most significant effect of nutrition in teeth is the local action of what we eat on the risk of developing dental caries or provoking erosion of the enamel.

Malnutrition has been related to alterations in the pattern of replacement teeth in children

Caries is a demineralisation of enamel and dentine, which is caused by various factors. Among these, one can highlight the role of organic acids that form in dental plaque as a result bacterial activity, through the metabolism of the sugars that are found in the diet.

The development of caries requires the presence of sugar and bacteria, but it is also influenced by the susceptibility of the teeth, by the type of bacteria, and by the quantity and quality of saliva secretion.

Dental caries is a problem that is almost non-existent in isolated communities, with a traditional lifestyle and low consumption of sugars. However, in more developed and economically advanced societies, there has been a considerable increase in the consumption of sugars and other fermentable carbohydrates, which brings with it a

THE OPINION OF THE EXPERTS

Elena Álvarez Rodríguez
Department of periodontology at the University of Santiago de Compostela.

"Diets low in antioxidant-rich fruits and certain polyunsaturated fatty acids worsen periodontal health"

considerable increase in the prevalence of caries. The types of sugar ingested through the diet also influence the appearance of the disease.

For example, lactose produces less acid in comparison with other sugars.

It has been shown, in addition, that the introduction of supervised changes in diet (replacing sucrose with xylitol) reduces caries by up to 85% in a period of two years. This is mainly because of the inhibition of the growth of a pathogen (*Streptococcus mutans*), the most important micro-organism responsible for the formation of caries.

Diet can thus be a good ally in the prevention of caries, alongside daily hygiene measures.

Dental hypersensitivity

Dental hypersensitivity is an exaggerated and intense pain, of short duration, provoked by stimuli considered normal (cold, heat, sweets).

It affects one in every three adults, the majority between the ages of 20 and 50. In 15% of cases, the pain can be so intense that it leads to changes in eating habits. It is also one of the most common causes of abandoning dental treatment. The use of a specific topical treatment, together with the elimination of acid foods and drinks from the diet, can help reduce this condition.

Nutrition and periodontal disease

Although the start and progression of periodontal disease is related to the balance between the presence of micro-organisms and individual susceptibility, among other risk factors implicated in this disease is diet. There are "protective foods" for periodontal disease; thus, for instance, an inverse relationship has been shown between the consumption of antioxidants, fibre, vitamins (C, D, E), and Omega-3 unsaturated fatty acids and the prevalence of peri-implantitis. ■

"Good nutrition is the secret for a healthier and longer life. Reduce refined sugars and increase the natural antioxidants of fruit and vegetables"

Iain Chapple
Head of School, University of Birmingham (United Kingdom). *Periodontal Research Group.*

"A healthy diet, balanced and rich in nutrients, is advisable for preventing the appearance of caries and periodontal disease"

Javier Vilarrasa
Collaborating teacher, master's degree in periodontology, International University of Catalonia.

Isabel Lopez-Oliva
Department of periodontology at the University of Birmingham (United Kingdom).

"Periodontal care is indispensable for maintaining masticatory ability, which will help the patient to have appropriate nutrition"

Beyond Oral health

What happens in the mouth does not stay in the oral cavity. Through a so-called systemic effect, the health of the mouth has an influence, and a considerable one, on people's general health.

PERIODONTAL DISEASES are among the most common diseases of humankind; severe periodontitis alone is estimated to affect at least 750 million people in the world (11.2% of the population) and is the sixth most common disease.

Consequences for health

But they are also diseases that have significant consequences that go far beyond the mouth: general health and many health-related indicators of quality of life depend, in part, on the health of the gums. The infection and inflammation that characterise periodontitis, through different means, ensure that the disease present in the oral cavity extends to other parts of the organism, acting as a systemic disease.

Periodontitis is an inflammatory, chronic, and preventable disease which is related to other important disorders (such as diabetes and cardiovascular diseases) and which is associated with risk factors that are common to many other diseases (smoking, alcohol, poor diet, sedentary lifestyle, stress, obesity...).

Of particular relevance is the bidirectional relationship between periodontitis and diabetes

The impact of periodontitis on diseases as important as diabetes or cardiovascular disease means that periodontal health has become a critical element for maintaining general health, strengthening the importance of the prevention and treatment of periodontal problems.

At the level of the oral cavity, there are many consequences that derive from the existence of a periodontal disease, which range from the presence of frequent bleeding or halitosis to the loss of teeth. But, at the systemic level, poor gum health has significant repercussions: a greater risk of the appearance of bacteraemia (presence of bacteria in the blood), increase in systemic inflammation, poor diabetes control, increase in the risk of developing or aggravating certain cardiovascular diseases, increase in the risk of adverse pregnancy outcomes (such as premature birth and low birthweight), and there is already even evidence that suggests a relationship between periodontitis and conditions such as erectile dysfunction, Alzheimer's Disease, and rheumatoid arthritis.

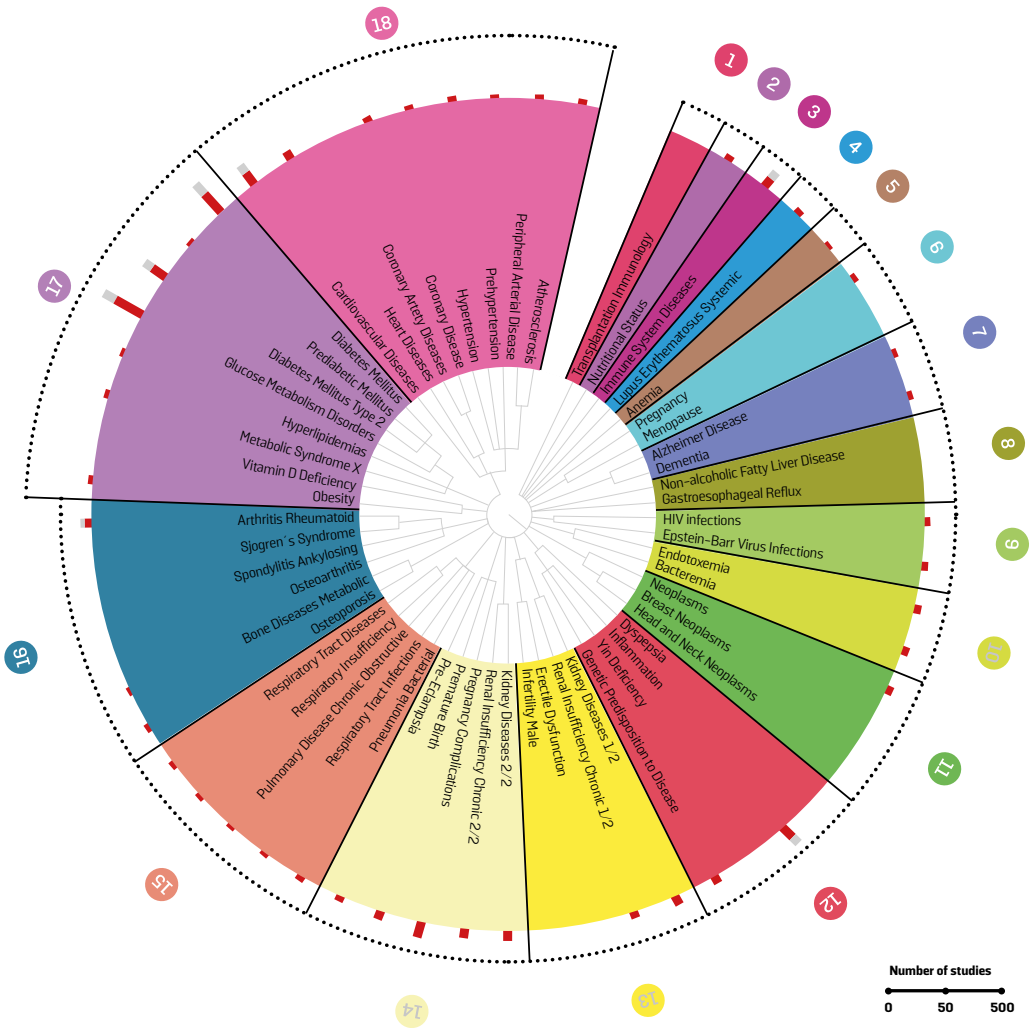
At least 54 systemic diseases have a relationship with periodontitis

THE OPINION OF THE EXPERTS

"Dentistry professionals in the promotion of oral health can generate benefits for their patients that go beyond the limits of their mouths and can potentially improve their quality of life"

David Herrera
Periodontist And ex-president of the Spanish Society of Periodontology (SEPA). Trustee SEPA Foundation.

Systemic benefits of periodontal health



1 Phenomena of the immune system. 2 Psychological phenomenon. 3 Diseases of the immune system. 4 ESkin and connective tissue diseases. 5 Lymphatic and circulatory diseases. 6 Reproductive and urinary diseases. 7 Diseases of the nervous system. 8 Diseases of the digestive system. 9 Viruses. 10 Bacterial and fungal infections. 11 Neoplasms. 12 Pathological conditions. 13 Urogenital diseases in men. 14 Urogenital diseases in women and pregnancy complications. 15 Diseases of the respiratory tract. 16 Musculoskeletal diseases. 17 Metabolic and nutritional syndromes. 18 Cardiovascular diseases.

Source: *Journal of Clinical Periodontology*. Monsarrat P, Blaizot A, Kémoun P, Ravaud P, Nabet C, Sixou M, Vergnes JN. *Clinical research activity in periodontal medicine: a systematic mapping of trial registers. J Clin Periodontol.* 2016 May; 43(5):390–400.

"Periodontal treatment improves the main quality-of-life indicators and can have a positive influence in the emotional sphere of the patient"

Phoebus Madianos
Periodontist and ex-president of the European Federation of Periodontology (EFP).

FROM ALZHEIMER'S TO ERECTILE DYSFUNCTION

As of today, there is consistent evidence that at least 54 systemic diseases have a relationship with periodontitis. In the case of Alzheimer's Disease, the existence of oral bacteria has been observed in the brain, and it has been seen that irregular tooth-brushing is associated with a greater probability of developing this disease and also multiplies by a factor of six the cognitive deterioration of these patients.

And it has also been demonstrated that there is an epidemiological relationship between patients diagnosed with erectile dysfunction and periodontal disease.

A RELATIONSHIP WITH A LOT OF HEART

The link between periodontitis and certain cardiovascular diseases is moderate, but consistent, and it has even been demonstrated that periodontal treatment can have a significant benefit on cardiovascular health, as has been observed through various indirect markers.

BIDIRECTIONAL RELATIONSHIP WITH DIABETES

Particularly relevant is the bidirectional relationship between periodontitis and diabetes. Diabetes mellitus is a risk factor for the start and the progression of periodontitis and, at the same time, severe periodontitis is a risk factor for diabetes and compromises glycaemic control in people with diabetes, also increasing the risk of suffering complications associated with this metabolic disease.

Your gums, safe with electric toothbrushes

SECTION CO-ORDINATED BY:
Mª Cristina Serrano
Master's degree in periodontology and implants. Complutense University of Madrid

There is a widely held belief about the possible risk of provoking damage to the gums when using an electric toothbrush. In particular, the danger of encouraging gingival retraction (or recession) – the exposure of part of the root of teeth after the migration of the gum – has been indicated. This has provoked discrepancies among experts when recommending manual or electric brushes to people with thin gums and a tendency to retraction.

Over three years, a team of dentists at the University of Kiel in Germany evaluated 75 individuals who presented gingival retraction at the time of the study's commencement. Half of these were recommended to use a manual brush and the rest an electric brush, but no special brushing technique was explained, only that they should brush for two minutes, twice a day.

Gingival recession tends to affect a significant proportion of adults

They were reviewed every three months for a period of 35 months. At the end of the observation period, not only had the initial retraction not increased, but there were also no differences between those who had used manual brushes and those who had used electric brushes.

This coincides with studies performed on patients in which gum grafts have been performed, in whom it has also been shown that the use of an electric brush has no reason to increase the retraction of the gums.

Psoriasis and periodontal disease, connected

PSORIASIS, like other diseases of an autoimmune character such as rheumatoid arthritis, present pathogenic mechanisms similar to periodontal disease, with an important inflammatory load and with similar development paths, which could indicate a possible relationship between them. In the last few years, numerous studies have been carried out that have tried to determine if this connecting link between the two diseases exists.

RECENT RESEARCH SUGGESTS A RELATIONSHIP BETWEEN BOTH DISEASES

The European Academy of Dermatology and Venereology has made known the results of an observational study, with data from a wide population of Danish adults (older than 18 years), between 1997 and 2011. Thanks to this large populational sample, it has been possible to infer that patients who manifested psoriasis over the course of their lives also presented an increased risk of developing periodontitis, in comparison with the healthy population; and the incidence of periodontitis was even greater in those who suffer psoriatic arthritis. Similar studies have been obtained in studies in Taiwan.

Psoriasis is an autoimmune, chronic disease characterised by inflation of the dermis and the epidermis, caused by an atypical hyperproliferation of certain cells known as keratinocytes.

The dental practice gets serious with diabetes

NUMEROUS STUDIES point to the close bidirectional relationship between diabetes and gum diseases.

Among other findings, it has been shown that people with diabetes have three times as much risk of suffering from periodontitis as individuals without diabetes, and that periodontal diseases progress more rapidly in diabetics.

It has also been confirmed that patients with advanced periodontitis have as much as six times more probability of suffering diabetes and of having the diseases poorly controlled.

DiabetRisk is a pioneering study in Spain, which seeks to use dental clinics to detect the risk of suffering diabetes

It has further been demonstrated that appropriate periodontal treatment can contribute to a better control of blood-sugar levels in these people; in particular, it has been observed that a suitable periodontal treatment can provoke a reduction in the values of glycosylated haemoglobin of the order of 0.4%, a rate which is not achieved by some of the glucose-lowering treatments that are on the market.

The early diagnosis of diabetes, and even of prediabetes, is fundamental for minimising the complications associated with the disease, such as cardiovascular problems and diabetic nephropathy.

It is known that in Spain there are more than two million people

with diabetes who still do not know that they are suffering from it, which prevents them from being able to take preventive and therapeutic measures to improve their process and reduce these complications.

Starting from this reality, it has emerged that the implementation of protocols for the detection of diabetes in the dental clinic could be effective.

To this end, the SEPA Foundation of Periodontology and Dental Implants has promoted pioneering research known as DiabetRisk. With the participation of the SEPA Network of Research Clinics, it seeks to evaluate the efficacy of a combined protocol to facilitate the early detection of undiagnosed diabetes and prediabetes in the dental clinic, through the combination of a diabetes-risk test (FindRisc) and the evaluation of periodontal health via the Basic Periodontal Examination (BPE).

The study's hypothesis is that the combination of both tests could increase the capacity of detecting people who have diabetes/prediabetes and still do not know. The protocol has been backed by the joint working group that SEPA has established with the Spanish Society of Diabetes (SED).

Your mouth can sound the alarm about coeliac disease

The presence of certain mouth lesions can indicate that you are suffering from coeliac disease. People who suffer an intolerance to gluten can present some manifestations of their coeliac disease in the oral cavity.

On the one hand, they tend to have a poorer absorption of calcium, which can be reflected in the teeth. These cases often feature what is known as dental-enamel hypoplasia, a condition which produces a change in the colour of the teeth, with the appearance of brownish or yellowish stains. On the other hand, these patients often tend to have recurrent mouth ulcers, probably related to the deficient absorption of iron, zinc, and B vitamins.

COELIAC DISEASE AFFECTS ABOUT 1 IN EVERY 100 PEOPLE

N. Marty, paediatric dentist at the Paul Sabatier University in Toulouse (France), believes that the association between the recurrent appearance of mouth ulcers and symmetrical defects in the enamel of children's teeth could be considered specific to coeliac disease, for which it could be one of the first silent symptoms of the disease. For this reason, this expert recommends that children who show these symptoms should he sent to a gastroenterologist to try to confirm the diagnosis of coeliac disease.

Another study, with 5,522 coeliac patients, concluded that these people present additional oral-health problems, notably dry mouth.

12 May, European Gum Health Day

To celebrate European Gum Health Day, which took place on 12 May, the Spanish Society of Periodontology (SEPA) organised various outreach and institutional activities in different Spanish cities over a period of several months.

IN THE FRAMEWORK of this celebration, the Casa de las Encías [SEPA Gum Health Centre] has hosted informative talks for students, as well as oral-health check-ups for people with diabetes.

Equally, and in the context of the SEPA national congress held from 12 to 14 April in Seville, activities were carried out aimed at the public. At the Santa Justa station, a stand offering free dental check-ups was set up, with information about oral hygiene and the distribution of educational material.

This year SEPA wants to attract attention to the connection between smoking and gum health

Against tobacco use

On this occasion, SEPA wanted to take advantage of European Gum Health Day to call attention to the close and negative relationship between smoking and gum health. For this, it organised various initiatives especially aimed at raising awareness about the negative impact that tobacco has on oral health and on the role that can be played by dental clinics in preventing this addiction and in helping people to quit smoking.

On 25 May, at the University of Santiago de Compostela, a seminar on “Managing the smoking patient within the dental practice” was held,

within the European project of smoking-cessation training for health professionals, backed by the European Union's Erasmus programme, the universities of Santiago de Compostela, Birmingham, and Bordeaux, and CEPSU (the co-operative of polytechnic and university higher education).

Also, on 10 May there was a presentation at the Casa de las Encías of the report developed by the working group of SEPA and the National Commission for the Prevention of Tobacco Use (CNPT), which evaluates the "impact of tobacco use on periodontal and peri-implant diseases."

European effort

European Gum Health Day, promoted by the European Federation of Periodontology (EFP), tries to raise the awareness of the general population, health professionals, and authorities of the importance of keeping gums healthy throughout the whole of life, involving up to 30 national scientific societies of periodontology in Europe, including SEPA.

Image of members of the SEPA–CNPT working group. From left to right: Bettina Alonso, Regina Izquierdo, Regina Dalmau, and Cristina Serrano.

ORAL HEALTH GOES TO SCHOOL

SEPA AND THE CUIDATE+ platform, which is part of the Unidad Editorial communications group (whose publications include the newspapers *El Mundo, Marca, and Diario Médico*), have joined forces in an initiative focused on developing educational workshops for pupils.

There have already been informative talks in various schools in the Community of Madrid and these initiatives will continue in the coming months seeking, among other objectives, to show students how to keep a healthy mouth and how to check their dental health, brush their teeth, take care of their gums, and know which foods are beneficial to oral health.

SMILING CHILDREN AT THE CASA DE LAS ENCÍAS

WITHIN THE OUTREACH and awareness campaign that Colgate carries out every year on oral health, in the first months of the year at the Casa de las Encías [SEPA Gum Health Centre] there have been various informative sessions for school pupils, with a notable success in terms of attendance and arousing a clear interest among the children. In total, 220 children, from the Colegio Santa Catalina de Siena in Madrid in Years 1 to 6, have participated in this educational initiative.

TAKING CARE OF THE ORAL HEALTH OF THE PERSON WITH DIABETES

The link between diabetes and periodontal health means that care of the mouth must be particularly rigorous in people who suffer from diabetes. The Spanish Society of Periodontology and the Diabetes Association of Madrid have joined forces to carry out an educational campaign, offering free check-ups to diabetes patients at the Casa de las Encías.

This open-door initiative, with an educational talk and dental check-ups, is supported by Straumann.

INFORMATIONAL VIDEOS TO IMPROVE CARE OF YOUR IMPLANTS

SEPA AND STRAUMANN are making available informational videos within the campaign "*Cuida tus Implantes*" [Look after your implants], which seek to raise awareness and provide information about the advantages of implant therapy and their attested reliability. This is a cross-disciplinary activity of the Alianza por la Salud Bucal y General [Alliance for Oral and General Health] promoted by SEPA. The novelty lies in that the frame of reference focuses on health and the responsibility of patients for their own care and their own lifestyle. These videos go beyond the merely restorative and functional focus to solidify a clear proposal of commitment to the promotion of periodontal and peri-implant health.

Professionals in dentistry and cardiology have joined together in an innovative project in Spain (and indeed at the European level) to provide online information to dentists and dental hygienists in the entire country about how to promote cardiovascular health from the dental clinic.

Your dentist can help you improve your cardiovascular health

SECTION CO-ORDINATED BY:

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From left to right: Blas Noguerol, patron of the SEPA Foundation; Adrián Guerrero, president de SEPA; Óscar Castro, president of the General Council of Dentists of Spain; and Manuel Anguita, president of the Spanish Society of Cardiology.

Initiative created and developed by:

SOCIEDAD ESPAÑOLA DE CARDIOLOGÍA

FUNDACIÓN ESPAÑOLA DEL CORAZÓN

SEPA SOCIEDAD ESPAÑOLA DE PERIODONCIA Y OSTEOINTEGRACIÓN

SEPA FUNDACIÓN SEPA DE PERIODONCIA E IMPLANTES DENTALES

CONSEJO DENTISTAS

FDE Fundación Dental Española

THIS SCIENTIFIC AND educational initiative comes from the close collaboration between the Spanish Society of Cardiology (SEC) and the Spanish Society of Periodontology (SEPA), through the work carried out by the SEPA-SEC working group on cardiovascular and periodontal health.

For its part, the General Council of Dentists of Spain will be in charge of channelling this initiative via its 52 professional colleges. It is estimated that more than 36,000 dentists and close to 27,000 dental clinics are registered with the General Council of Dentists.

Also participating in the course are the Spanish Dental Foundation, the Spanish Heart Foundation (FEC), and the SEPA Foundation of Periodontology and Dental Implants, and it is supported by VITIS and Perio-AID. In the opinion of Oscar Castro, president of the General Council of Dentists, "this is an initiative of great interest, both for its aims (to train dentists in promoting cardiovascular health from the dental practice) and for the epidemiological and healthcare importance of cardiovascular processes in our country."

The dental clinic is an ideal health spaceto carry out actions of primary prevention

It is a virtual course that will be free, with four editions planned for 2018 and five for 2018. As SEPA president Adrián Guerrero highlights, "with this initiative we are trying to provide dentistry professionals with basic information so that they can deal correctly with the characteristics and special demands that patients with cardiovascular disease can have when they come to the dental clinic, and to offer dentists and dental hygienists knowledge and tools so that they can detect cardiovascular risk factors at an early stage and promote healthy lifestyle habits."

In his opinion, the dental clinic is the ideal space to perform actions of primary prevention, both in the dental and periodontal field and in the area of general health.

The role of the dental practice

According to the view of the top representative of the Spanish Society of Cardiology (SEC), Manuel Anguita, "The dental practice is, leaving aside the differences, a type of primary healthcare service, which is attended by healthy people with oral problems and also others who, often without knowing it, present health problems that go far beyond the oral cavity." In fact, this expert adds, "dentists can play a similar role to that played by general doctors in regard to the work of preventing and detecting disease."

This, in the opinion of the SEC president, "confers a crucial importance on the dentist and dental hygienist, as they can complement their usual work in caring for oral health with useful information to improve lifestyle habits or with the performance of simple practices that can help in the early detection of cardiovascular diseases."

IF YOU TAKE CARE OF **THEIR GUMS** YOU ARE TAKING CARE OF **THEIR HEART**

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GIN-GIVI-TIS.

Superficial inflammation of the gums. Bleeding is the main warning sign. If it is not treated properly it can develop into periodontitis.

PERIO-DON-TITIS.

Deep inflection of the gums and the other tissues that support the tooth. It can lead to the loss of teeth. It has repercussions for general health: it increases the risk of cardiovascular disease, diabetes, and preterm birth.

cuidatusencias.es

SEPA SOCIEDAD ESPAÑOLA DE PERIODONCIA Y OSTEOINTEGRACIÓN

2 times a day, act:

1. Brush your gums and teeth using a toothpaste
2. Use dental floss or interdental brushes
3. Strengthen your hygiene with a mouth rinse

Every 3 months

4. Get a new toothbrush

Every 6 months

5. Visit your dentist or periodontist for a gum check-up and to have your mouth cleaned

SEPA recommends the use of products that are scientifically endorsed.

Risk factors

- **Smoking.**
- **Stress.**
- **General Diseases** or lowered defences: diabetes, osteoporosis, HIV, herpes, transplants, etc…
- **Hormonal changes:** pregnancy, menopause.
- **Family history.**

Warning Signs

- **Bleeding** or reddening of the gums
- **Bad breath**
- **Hypersensitivity to cold**
- **Mobility or separation** of teeth.
- **Loss** of teeth.

Simple Treatments

- **Improve oral hygiene.**
- **Complete cleaning** of bacterial plaque on the gums.
- **Evaluation** of periodontal status.
- **Control of plaque and bacteria** below the gums (scaling).
- **In advanced cases,** minor surgery.

SEPA SOCIEDAD ESPAÑOLA DE PERIODONCIA Y OSTEOINTEGRACIÓN

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