issn 2567-286X • Vol. 3 • Issue 1/2019

1/19

prevention

international magazine for oral health

psychology of prophylaxis
The challenge of creating and maintaining healthy oral hygiene habits

periodontitis
Periodontal inflammation simplified

industry
“Children learn to be confident doing something independently at an extremely important stage”

dti Dental Tribune International

BioMin™

Armour for Teeth

Exciting news

for healthy teeth

- First accredited sensitivity relief and remineralising toothpaste by the Oral Health Foundation
- Strengthens teeth and protects against decay
- Makes teeth feel cleaner and fresher
- Provides hot and cold sensitivity relief
- Makes tooth whitening less irritant
- Developed from research at Queen Mary University of London

ORAL HEALTH FOUNDATION APPROVED

BioMin Technologies Limited
Room E204, Queens Building, Queen Mary University of London, Mile End, London E1 4NS
+44 203 281 7282 | www.biomin.co.uk
@BioMinTech /BioMinTechnologiesLimited

Magda Wojtkiewicz

Managing Editor

"The mouth is connected to the rest of the body"

Awareness of the link between oral health and systemic diseases is growing, at least among specialists.

In the middle of February, representatives of the European Federation of Periodontology (EFP) and the World Heart Federation met at the Perio and Cardio Workshop in Madrid in Spain to review current evidence and find a consensus on the link between periodontitis and cardiovascular disease.

Dental and heart experts agreed that proper oral hygiene and regular visits to the dentist can support cardiovascular health. The EFP advised that joint recommendations will be published later this year, but the take-home message is already very clear: "Cardiologists should be aware of the connection between gum disease and heart disease and encourage their patients to be screened for periodontitis." and "Patients with periodontitis should be advised that they have a higher risk of heart disease and should manage their cardiovascular disease risk factors".

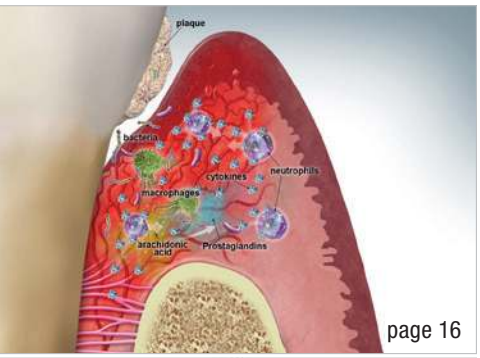
Research has indicated a link between periodontal disease and cardiovascular disease, as well as stroke, bacterial pneumonia, preterm births and low-birthweight babies. Evidence suggests that patients with severe periodontal disease are at greater risk of heart attack and stroke.

Oral bacteria can move into the blood stream and promote inflammation and hardening of the arteries. Furthermore, periodontitis and cardiovascular disease have common risk factors, including tobacco use, alcohol consumption, age and diabetes.

If the consequences of poor oral health can be so serious, why is public education on this matter so poor?

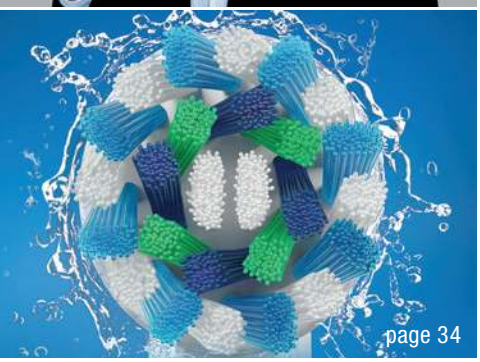
It seems that dental professionals have a key role to play. They should constantly remind their patients that the mouth is connected to the rest of the body. Patients should be taught not only how to brush and floss, but also about the role oral health plays in some systemic diseases, such as diabetes and heart disease, and complications during pregnancy. Only well-informed and motivated patients will be able to create and maintain healthy oral hygiene habits.

Magda Wojtkiewicz
Managing Editor



page 16


page 28


page 34

Cover image courtesy of Kitten Planet (www.brushmon.com)

Planmeca Emerald™ intraoral scanner

Precious things come in small packages

The brand new intraoral scanner **Planmeca Emerald**™ is a small, lightweight, and exceedingly fast scanner with superior accuracy. Taking digital impressions has never been as easy. It is the perfect tool for smooth and efficient chairside workflow.

It is a true game-changer!

Find more info and your local dealer!
www.planmeca.com

PLANMECA

Planmeca Oy Asentajankatu 6, 00880 Helsinki, Finland. Tel. +358 20 7795 500, fax +358 20 7795 555, sales@planmeca.com

Stress—Friend or enemy?

By Dr Michèle Reners, Belgium

"Stress" is a term that is often misused and applied inappropriately. In today's world, being stressed is often associated with a busy, active work life. In reality, what we call "stress" is actually a complex phenomenon that weakens our organism and whose main purpose is to maintain internal balance. Stress is blamed for many illnesses and, more than just a risk factor, it is a real affliction.

But it was not always like this. Primitive humans lived under much more stressful conditions than we do today, since their survival was constantly at stake. They had to hunt to survive and were required to either fight or flee. The reactions generated by stress were a source of energy that allowed them to survive in the aggressive world they lived in. They immediately channelled their energy into action. In today's world, aggression is evidently more often verbal and it is impossible to fight or flee from a board of examiners, the boss or a traffic jam. Stress often lasts longer and is more intense (bullying in the workplace, for example) and it is here that the pathology becomes ingrained.

But what is stress?

It is an adaptive response. In 1920, Cannon proposed a scientific description of stress: "the body of any complex animal manifests a stereotyped response pattern to any environmental threat disturbing its balance", the well-known fight or flight response.[1] It was Selye who in 1936 named it the "general adaptation syndrome".[2] He described three stages of physiological responses. The first is the *alarm stage*, when faced with a difficult situation. This stage aims to mobilise resources: breathing accelerates, fat is burned and glucose released. The heart rate increases and the five senses become sharper. Digestion is interrupted and saliva production decreases. Priority is given to the muscles and the brain. All of these reactions, or adaption efforts, are normal and useful and they allow our body to adapt to a continually moving environment. If no action is possible and no solution conceivable for adapting to the threat, the *resistance stage* begins. This stage corresponds to a state of heterostasis, and it is at this stage that psychological and/or psychosomatic problems may begin. The *stage of exhaustion* marks the end of the stage of resistance with the exhaustion of resources and the abandoning of effort. This is burn-out.

Of course, everyone reacts differently to stressors, because everyone sees things differently and has his or her own capacity for adaptation (or ability to cope). We talk about successful coping behaviour when the individual has a feeling of confronting and staying in control. It would be a failure if he or she were overwhelmed by events (stressors). Selye also made a distinction between negative stress (distress) and positive stress (eustress).[2] The latter is beneficial to everyone, as it allows one to push one's boundaries without losing one's internal balance and reach a fixed objective (for example, the stress of a sportsperson before a competition).

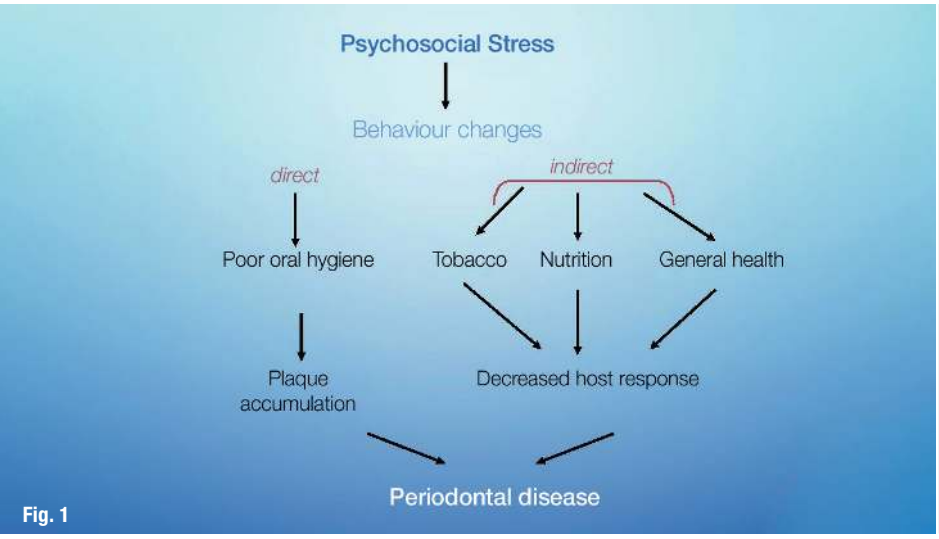


Fig. 1

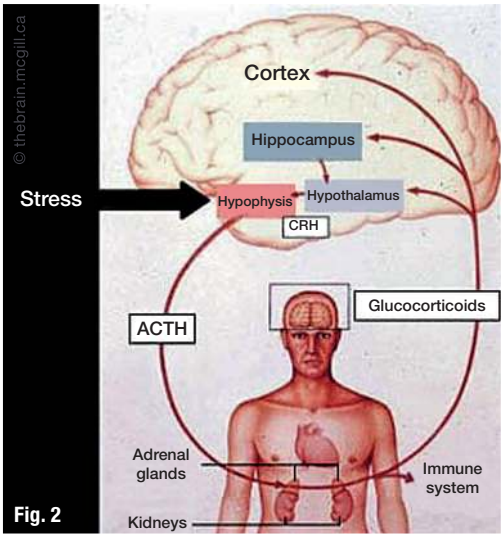


Fig. 2

Fig. 1: Psychosocial stress patterns. **Fig. 2:** Brain–body stress loop.


Dr Michèle Reners

What is the link between stress and periodontal disease?

Periodontal disease is an inflammatory multifactorial bacterial disease. In necrotic periodontitis, stress has long been recognised as a major risk factor.[3, 4] Alexander the Great's soldiers were already suffering from this pathology, and later, it affected soldiers in World War I, when it was known as "trench disease". Stages of activity have been described in the development of periodontal disease. Stress is considered to be an aggravating factor owing to two phenomena: stress generates a change in behaviour on the one hand and a reduction in immune defences on the other (Fig. 1).[5, 6] Many studies, some very old, have shown that patients with depression have a tendency to eat poorly, take less care of themselves and increase their consumption of tobacco, alcohol and medication. We know that periodontal disease is stabilised if patients carry out daily meticulous cleaning of their teeth and interdental spaces. Internal motivation is reduced in depressed patients and so negligence of dental hygiene increases the amount of biofilm and changes its composition. Nutritional deficiencies are also responsible for decreased immunity. Tobacco use is a recognised risk factor for periodontal disease. The accumulation of all these changes in behaviour increases the risk of developing periodontitis or of relapsing.

The way in which stress acts on the immune system is summarised according to the hypothalamic–pituitary–adrenal axis (Fig. 2). Psychosocial stress is capable of activating the hypothalamus, which will secrete adrenocorticotropic hormone, which will in turn stimulate the adrenocortical gland to produce glucocorticoids, of which cortisol has an immunosuppressive action. The adrenal cortex will produce catecholamines because it is stimulated by the autonomic nervous system.

It is interesting to note that coping behaviour is a determining factor in the outcome of periodontal treatment: results are better in patients who are good at coping.[7, 8] The latest research highlights emotional intelligence; the higher it is, the better patients respond to periodontal treatment.[9]

How should we deal with stress?

We must diagnose stress in our patients and direct them to specialised therapists.[10] However, patients are not the only ones who suffer from stress; dentistry is a highly stressful profession. It is, therefore, important to detect stress early and manage it effectively. We know more now than ever about the causes of stress, how it works, its consequences and antidotes. To start with, we can adopt a healthy lifestyle and follow some recommendations. Sport is the ideal way of reducing stress, since physical activity frees the energy accumulated by stressful situations. Whatever sport one chooses, one should enjoy it and set reachable goals at the beginning. Some prefer relaxation with yoga or meditation, including Meditation-Based Stress Reduction. It has also been shown that these techniques directly stimulate the regions of the brain associated with well-being, relax muscles and have an analgesic effect. Having pleasant social interactions and avoiding isolation reduces the secretion of cortisol. Similarly, relaxation techniques reduce the concentration of catecholamines.

Stress is our body's alarm signal, and it is important to detect it. It can remain our friend if we listen to it. However, if we ignore the warning signs and fail to recover the internal balance, it can quickly become our worst enemy.

Editorial note: A list of references can be obtained from the publisher.

The psychology of patient compliance

By Brendan Day, DTI

Informing and instructing patients about preventative oral health behaviours can be easy, but actually getting them to engage in these practices—in other words, patient compliance—is a whole different predicament. Anxiety, stress, impulsive behaviour and a lack of motivation are just a few of the impediments to this goal, despite the patient's best intentions. Understanding what it is that causes people to engage in beneficial behaviours and avoid deleterious ones is then clearly essential to helping them achieve long-lasting oral health.

Why we do what we do

Dr Benjamin Gardner is a senior lecturer in psychology at King's College London in the UK, where his research focuses on habit theory and understanding/changing behaviour. When asked why people engage in behaviours they know to negatively affect their health, his answer was simple: "People will do whatever they most want or need to do at any one moment." He continued: "Often we do things that conflict with our health values, because there is something that is attractive in some non-health-related sense about that behaviour. We may intend to avoid drinking too much alcohol when we go out to a bar, for example, but once we are in the bar, we experience forces, such as pressure from friends, that make us want to drink to excess more than to want not to drink to excess."

"The key to keeping our behaviour in check, then, is to anticipate such pressures, and to form plans of how to deal with them when they arise so that we can act in line with our longer-term goals, such as wanting to be healthy, rather than acting in line with in-the-moment pressures like wanting to drink alcohol to excess," Gardner explained.

As a registered dental hygienist in Boston in the US, **Amber Auger** knows from experience that an individual may avoid going to the dentist because of his or her fear of the situation. "The fear of pain and the unknown often impedes patients from receiving the necessary preventive and restorative dental treatment," she said. "Often, patients will reach a point where their fear of the treatment they may need is so great that they stay away from the dental practice altogether."

The consequences of bad habits

Avoid the dentist enough times and it becomes a habit, according to Gardner. "We may have ingrained habits that prevent us from seeking help," he suggested. "For example, someone may have a habit of downplaying his or her symptoms, or distracting him- or herself when experiencing symptoms. In this case, this can be a barrier to help-seeking."

Merely going to the dentist for regular check-ups is not enough to ensure long-term oral health, however. Frequent toothbrushing, interdental cleaning and other forms of plaque control are essential elements of a healthy oral care routine, and they are generally quite easy to perform individually once the patient is shown the correct technique. Despite this, the World Health Organization estimates that 60 to 90 per cent of school-aged children, as well as the vast majority of adults, suffer from dental caries, a disease considered to be easily preventable with proper oral care. Clearly, greater understanding of how to communicate with and motivate patients to take care of their teeth is needed.

An emphasis on the patient

Dr Christopher Niemiec is an Associate Professor in Psychology in the University of Rochester's Department of Clinical and Social Sciences in Psychology in the US. His research centres on human motivation, emotion and personality in a variety of different contexts and cultures through the lens of self-determination theory. Niemiec says that a lack of emphasis on autonomy and competence can have a detrimental effect on patients' self-care practices.

"Being proactive, regardless of the domain in which the behaviour occurs, requires energy and direction," Niemiec explained. "For a lot of people, it's difficult to harness the psychological energy necessary to be proactive and to direct that energy toward important goals,

particularly when people experience a lack of support for their basic psychological needs."

To motivate their patients to be proactive in their behaviour, healthcare professionals must adopt the perspective of the patient, Niemiec recommended. "The idea, if you want to support autonomy, is to elicit and acknowledge the feelings of your patients with regard to health behaviour," he clarified. "Really try to understand what health behaviour means for the patient—what are the challenges and what are the potential benefits to living in a healthy way?"

Promoting compliance

Engendering compliance in dental patients with regard to good oral health habits can be difficult, however. A wealth of literature on the subject clearly demonstrates that, for patients with chronic but non-life-threatening, often asymptomatic conditions, such as periodontitis, there is generally a low level of compliance with suggested oral hygiene regimens. This is due to a myriad of factors, though high on the list is a lack of patient understanding. A 2009 nationally representative study by Yin et al., published in *Pediatrics*, on the health literacy of parents in the US found that 28.7 per cent of the sample had basic or below-basic health literacy, which has been linked to negative health outcomes. Though this may imply that using clear, easy-to-understand language when conversing with patients might lead to improved health habits, the way in which this information is conveyed can have a determining effect on patient compliance.

"Healthcare professionals can minimise their use of controlling language in order to give their patients a sense of autonomy," Niemiec advised. "Control is all around us—people tend to tell us that we should floss more often, and when I hear that as a patient, I begin to feel as though the dentist or dental hygienist has a particular agenda or goal for me, and I don't feel as though it's really my goal. Be encouraging, use phrases like 'you may want to' instead of 'you must do this', and the patient will feel much more like an agent than a pawn."

Gardner echoes Niemiec's endorsement of autonomy-inducing language and emphasises a cooperative, supportive dentist–patient relationship. "With regard to intrinsic motivation, it has been shown that people may be more receptive to behavioural change where the person giving the behaviour change advice uses autonomy-supportive language, i.e. language that makes the person feel like he or she is in control of his or her own decisions," Gardner explained. "So then, a medical professional should not tell a patient 'you must do X'; instead, he or she should say 'have you considered doing X?'"

Motivational interviewing—An alternative approach

Dr Johan Wölber is based in Germany, where he practises as a dentist and is a researcher at the University of Freiburg's Department of Operative Dentistry and Periodontology. He is a practitioner of the motivational interviewing (MI) approach, a concept developed by psychologists Bill Miller and Stephen Rollnick. MI is based on the client-centred therapy first described by psychologist Carl Rogers.

"Research has shown that instructional communication has mostly induced contradictive behaviour," said Wölber. "This is the point that the first MI researchers communicated—they were coming from having worked with patients with alcohol problems, and they had seen that the more they told their patients not to drink alcohol, the more their patients tended to drink. From this, we can see that there was a paradox between instructional intervention and the actual health outcome."

Wölber's deep knowledge of this topic has been solidified through his own research. A 2017 systematic review by a team including Wölber, published in *Frontiers in Psychology*, measured the effects of MI as an adjunct to periodontal therapy. They found that its use in this regard might have a positive impact on clinical parameters like gingival inflammation and plaque values, as well as provide a boost to patients' confidence in their ability to execute healthy oral hygiene practices.

He emphasised that, though MI does not depend on instructional communication, the dental professional, nevertheless, needs to be able to guide the patient towards a place of self-empowerment. "MI is a directive method—I'm not telling the patient what to do, but I am directing the flow of the conversation by providing him or her with certain questions about his or her thoughts on oral hygiene and so on, whether the patient thinks he or she can improve it," said Wölber.

Is there a solution?

In the end, no single approach will prove to be satisfactory for each and every patient, as motivating factors can differ drastically from person to person—for example, older patients, particularly those older than 60, are used to a more instructional doctor–patient relationship and, therefore, may prefer being told what to do (instead of forming ideas themselves), according to Wölber. Regardless, a willingness to listen, communicate openly and provide patients with a true sense of autonomy is essential to ensuring their adoption of a positive approach to their oral care.