



THE SWISS BIOHEALTH® CONCEPT

Dr Volz Biological Dentistry
'BTP Biological Treatment Protocol'
The 'ALL-IN-ONE' Concept
My BIOHEALTH Week



2018

SWISS  BIOHEALTH®

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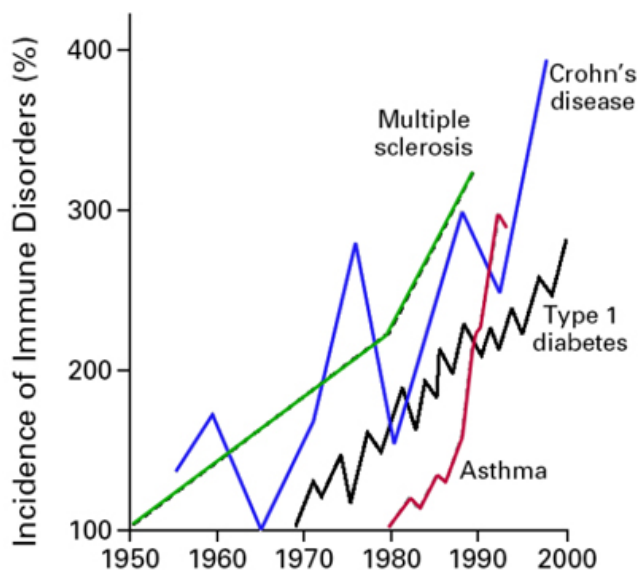
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1. Introduction

1.1 THE CHANGES IN OUR ENVIRONMENT

If we look attentively at the changes occurring in our environment, we will notice some trends running in parallel: an exponential increase in chronic diseases, a similarly exponential trend of increasing strain on our immune system, but also an exponential increase in organic nutritional and behavioural concepts.

Chronic diseases, such as cancer, ALS, Alzheimer's disease, Parkinson's disease, MS and chronic fatigue syndrome, are increasing at an explosive rate, and extrapolation of the curves shows that within a few years, everyone living in the Western world will be affected by at least one of these diseases.



Source: Bach JF. The effect of infections on susceptibility to autoimmune and allergic diseases. N Engl J Med. Sep 2002;347(12):911-920

In Germany alone, for example, the incidence of MS increased from around 100.000 cases per year to some 150.000 cases between 2004 and 2009. In the United States, with the introduction of copper amalgam in 1976, its incidence surged from one year to the next, from about 8.000 new cases per year to 123.000 new cases. Amyotrophic lateral sclerosis (ALS) was virtually unknown 20 years ago. Today, its incidence worldwide has already increased to 2.4 individuals per 100.000 inhabitants, with northern countries being more severely affected. When you compare these curves with the increase in root canal treatments, an alarming parallelism is evident: in the USA,

around one million root canal procedures were carried out in 1975, in 2,000 as many as 30 million, and today the figure stands at about 60 million.

This means that every 4th American undergoes one further root canal procedure every year! In Germany, the number of root canal procedures carried out every year stands at about 9 million.

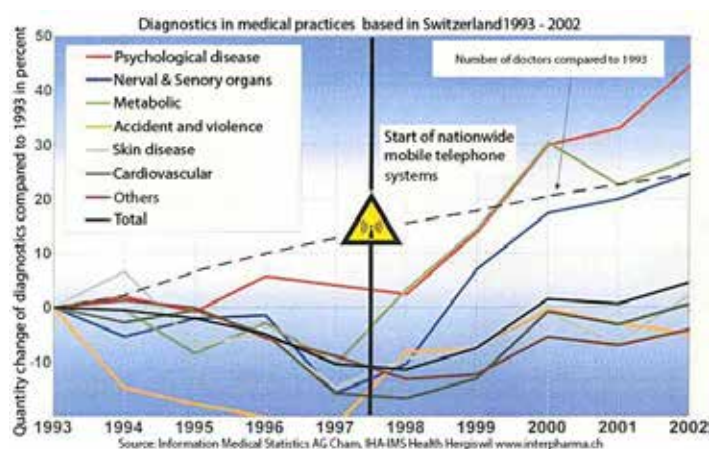
Fortunately, this explosive growth in chronic diseases is forcing the population to change its mindset and strive for a healthier and 'organic' way of life: In standard supermarkets, organic products are, proportionally speaking, the best-selling products, with specialist organic shops such as 'Alnatura' in Germany or 'Whole Foods' in the USA sprouting all over the place. More and more restaurants are offering menus with gluten-free dishes or dishes recognised as being healthy and free from additives. The reduction of harmful substances in textiles, the conservation of natural resources and success stories such as Tesla's electric car and many other examples all send out a clear message. Even for a product that is obviously detrimental to health, the cigarette, there is now an 'organic' version of each brand packaged in a beige box. Just a few years ago, 'American Spirit' was the only brand in this segment. What is interesting is that today, the profile of the 'organic consumer' spans both the 'esoteric environmentalist' and the social elite. Could it be that evolutionary selection is currently under way once again, in line with Darwinian principles?

This change in mindset is urgently required, as there are unfortunately certain factors in our environment that pose a progressively intensive risk to our health: increasing electromagnetic radiation in the form of high gigahertz frequencies related to mobile communications, WLAN and DECT technology. But that's not all: the radioactive burden is also steadily increasing and, as a result of accidents such as at Fukushima, is also experiencing an exponential surge. Also, the addition of titanium oxide (E171) to cosmetics, sunscreen, oral contraceptives, toothpaste, chewing gum and even yoghurt has led to an increasing intolerance to titanium, which is still being used in alternative medicine and traumatology. Yet even in its purest form 'Grade 1 titanium', this chemical element still contains up to 0.20 % of iron and traces of nickel as well. This is an alarming fact when you consider that 80 % of women in Europe experience an allergic reaction to nickel.

The alarming increase of chronic diseases is based on one common cause: the enormous rise of stress, which leads to the shutdown of the immune system (1.4 SYMPATHETIC NERVOUS SYSTEM - PARASYMPATHETIC NERVOUS SYSTEM). Emotional stress, triggered by negative emotions in relationships, in work environments and the increasingly hectic life with its spread of technology and permanent availability are one reason. Another major reason is the exponential rise of EMF (electromagnetic fields).

A study conducted in swiss doctors' offices shows, that the majority of chronic diseases were decreasing until the point of nationwide mobile network coverage and started to rise in amount again since then.

The third stress factor, the major one for affected patients, is the oral cavity and the teeth acting as a bioreactor for viruses, bacteria, fungi, toxins and inflammation mediators. Furthermore, heavy metals from amalgam fillings and other dental alloys, allergens from plastic and alloy components and the antenna effect of metallic prosthetics increase the burden the patient must bear.



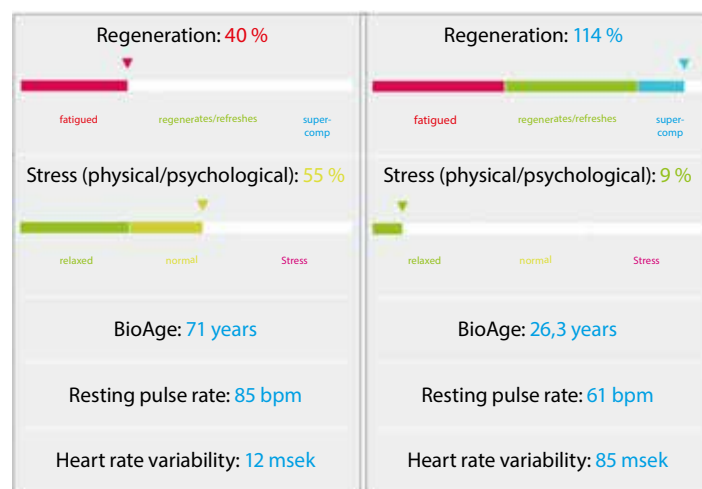
1.2 LINK BETWEEN DENTAL STRESS AND CHRONIC DISEASE

The changed aspects of lifestyle today must be taken into account in a new type of metal-free dentistry. A smaller vulnerable oral surface area offers protection against the environmental disturbances and helps to eliminate and heal the increasing levels of chronic inflammation in the masticatory system. According to the author, if such dentistry was to be carried out consistently, every patient would experience an improvement of health. This often occurs whilst still in the dentist's chair at the end of a treatment session. When the last bit of metal has been removed, for example, patients often say that they feel as though a

"helmet has been taken off" or that a "thick piece of glass has been removed from in front of their face". After chronic inflammations such as osteitis of the jaw, cysts, or root canal-treated teeth have been removed, patients often experience an immediate improvement in their musculo-skeletal system. For example, they are suddenly able to move an arm freely, that had previously been cause of severe pain.

1.3 HOW CAN THIS LINK BE EXPLAINED?

A manifest chronic disease presents itself as a pathological change of the anatomy (tumour tissue, brain cells, glands, bone/cartilage, musculature). This disorder is always preceded by a functional disturbance (impaired cell division, deficiency or surplus states within cells, poor/compensatory posture), which is, in turn, triggered by a regulation disturbance (hyperacidity, cellular stress, oxygen deficiency, vitamin and nutrient deficiency, inflammations, toxins, bacteria, allergens, etc.). It is evident that a treatment that tackles the end of this chain cannot promise a great deal of success. If the functional and regulation disturbance are maintained, the immune system will be put under additional strain by an intervention such as an operation. Our lifestyle and environmental strain have caused portions of our immune and healing systems to shut down by influencing the sympathetic nervous system. Stress uses up large amounts of nutrients and vital substances, which only worsens the existing deficiency - a real vicious circle.



The HRV (Heart Rate Variability) measurement prior to and after the surgery for removing multiple dental sources of disturbance shows a massive reduction of stress and the biological age of the patient.

1.4 SYMPATHETIC NERVOUS SYSTEM – PARASYMPATHETIC NERVOUS SYSTEM

The stress reaction controlled by the sympathetic nervous system is a neutral and vital physiological reaction of the autonomic (immutable) nervous system. The release of adrenaline, noradrenaline and cortisol sends us into flight-fight-freeze mode within fractions of a second, as the amount of oxygen and nutrients in our blood and tissue increase within the skeletal musculature. Our heart rate rises, the blood vessels narrow and the blood pressure increases. Breathing is intensified. Our bodies are supplied with energy due to the release of fatty acids from our fatty tissue and of glucose from our glycogen reserves. By way of compensation, the digestive and immune systems need to be inhibited: the intestinal muscles are relaxed and digestion repressed, and the thymus gland, the spleen and the lymph nodes decrease antibody production. Inflammation in tissue is inhibited, benefiting pathogen distribution the longer the situation persists. The core body temperature is increased and sweat production concomitantly stimulated in order to counteract any overheating. The pupils dilate as this expands the field of vision by around 10 %, making it easier to perceive enemies or means of escape. The kidney retains water, while the salivary glands (dry mouth) and sex organs are inhibited. The entire metabolism and physiology are focused upon a single objective: to bring the acutely life-threatening situation to an end as quickly and successfully as possible.

If the neutral physiological mechanisms specified above are sustained for a longer period than evolution has intended, this results in huge regularisation disturbances, which, in turn, lead to functional disturbances and, in the long term, also to structural disorders. The oxygen deficiency and hyperacidity of the cells leads to cellular and tissue damage and even to cancer. In 1911 and 1936, respectively, Otto Warburg and Max Planck won Nobel Prizes for successfully demonstrating that cancer cells cannot survive in an alkaline, oxygen-rich environment.

However, the regularisation, immune and healing mechanisms that are now so urgently required have been shut down in the stress/sympathetic nervous system situation, and are unable to counteract it.

The regeneration physiology, the immune system and healing mechanisms can only be re-activated by a switch to the parasympathetic mode regulated by acetylcholine. This occurs when the stress state comes to an end.

Unfortunately, in addition to genuine stress, which usually only lasts for a very short time and can nowadays be

triggered by an accident or an attack, we also experience longer-lasting stress:

- Physical stress (physiological/biochemical): This can be caused by metals in the oral cavity (e.g. mercury from amalgam fillings), toxins from root canal-treated teeth and allergens from filling materials, but also by our diet (e.g. gluten). Being overweight or deficient in nutrients such as magnesium or vitamin D3, having a limited fitness, a generally poor diet, sleep deficiency and electromagnetic fields (EMF) all increase such physical stress.
- Psychological stress is an artificial stress and arises as a result of fears and images in our brain ("I've lived through some terrible things in my life, some of which actually happened!") (Mark Twain)
- Emotional stress is triggered as a result of stressful personal and work relationships, but also by locations and situations (traffic jams, loud noise).

The three triggers that cause the most stress and therefore chronic diseases in today's world are stressful personal relationships, electromagnetic fields and dental/oral sources of disturbance.

Some of these extremely stressful mechanisms are described below.



Eye area directly before and after 8-hour surgery: the eyes are much clearer and the pupils are smaller due to the impact on the parasympathetic nervous system.

1.5 SOME MECHANISMS OF ORAL DISTURBANCE

a) Silent inflammation: Bacteria or bacterial products present in jaw inflammation or emerging from root canal-treated teeth escape into the bloodstream (bacterial translocation), and are characterised by endotoxaemia (increased concentrations of endotoxins in the blood). This long-term stress that occurs 24 hours a day, seven days a week, triggers low-level chronic inflammatory processes in the body and is termed 'silent inflammation'. Consequently, this can lead to serious metabolic diseases such as obesity or diabetes mellitus, and also to serious cardiovascular diseases (atherosclerosis, heart attack, stroke) and cancer (www.ganzimmun.ch).

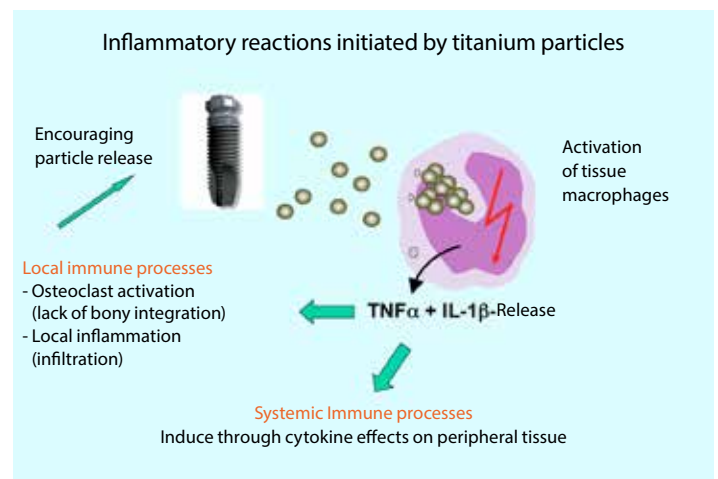
b) Autoimmune disease: Each of our cells has a so called MHC code (major histocompatibility complex) that tells our immune system that the cell belongs to us and is a 'self cell'. You could also describe this as a uniform, which a person wears to distinguish themselves as a member of a particular group and which prevents them from being attacked by the other group members. However, if this MHC code is changed, this is somewhat like the cell changing its uniform, now being under attack by the police force of its own group, i.e. its own immune system. The 'self cell' now becomes a 'non-self cell'. Toxins from jaw inflammation or root canal-treated teeth in particular, but also heavy metals from dental materials, primarily amalgam (consisting of over 50 % of mercury) bind to our cells and change the MHC code. If the cell in question is a muscle cell, this can result in fibromyalgia or MS. If it is a nerve cell, this can trigger ALS or Alzheimer's disease.

c) Axonal transport: Endotoxins, which originate from bacteria or are released when bacteria die, can be transported through the axons (the nerve fibres) and quickly reach the ganglia or the CNS. Here they can lead to blockages and failures of the trigeminal nerve, the abducens nerve or the facial nerve, for example.

Removing the lesion or the interference field, and eliminating the endotoxin supply source, can therefore lead to a sudden improvement in the area of nerve dispersion in a kind of 'instantaneous effect'. This can be simulated in advance by injecting a neural therapeutic agent, for example (see below 3.1.f Procaine).

d) Allergies and incompatibilities: Genuine type I allergies are very frequently experienced to plastics, especially methacrylate. Type IV allergies occur in response to

dental alloys. Titanium, on the other hand, does not appear as an ion in the tissue, but as an oxide particle. It therefore does not cause an allergy, but triggers 'particle-induced inflammations'. The titanium particles in the tissue close to the implant are phagocytised by macrophages, which respond to this stimulus by distributing osteoresorptive, proinflammatory cytokines ($\text{TNF}\alpha$, $\text{IL}1\beta$) (STERNER et al. 2004). Therefore, titanium compatibility should be verified by way of the 'titanium stimulation test' before using titanium (www.imd-berlin.de).



The figure above shows how the axis titanium particle > activation of tissue macrophage > $\text{TNF}\alpha$, $\text{IL}1\beta$ > release osteoclast activation causes bone degradation around the implant. Newest studies now prove our long-time assumption, that the so called "Periimplantitis", i.e. inflammatory bone loss around titanium implants, is nothing but a sign of titanium intolerance. This explains why the propagated method of treating periimplantitis by grinding and polishing the implant surface or cleaning it with titanium brushes, is like adding fuel to the fire. It incorporates gigantic amounts of titanium particles into the bone and tissue, leading to further bone loss.

Increased Levels of Dissolved Titanium Are Associated With Peri-Implantitis - A Cross-Sectional Study.

Safioti LM¹, Kotsakis GA¹, Pozhitkov AE², Chung WO², Daubert DM¹.

Author information

Abstract

BACKGROUND: Peri-implantitis represents a disruption of the biocompatible interface between the titanium dioxide layer of the implant surface and the peri-implant tissues. Increasing preclinical data suggest that peri-implantitis microbiota not only triggers an inflammatory immune response but also causes electrochemical alterations of the titanium surfaces, i.e., corrosion, that aggravate this inflammatory response. Thus, it was hypothesized that there is an association between dissolution of titanium from dental implants, which suggests corrosion, and peri-implantitis in humans. The objective of this study is to compare levels of dissolved titanium in submucosal plaque collected from healthy implants and implants with peri-implantitis.

METHODS: Submucosal plaque from 20 implants with peri-implantitis and 20 healthy implants was collected with sterile curets from 30 participants. Levels of titanium were quantified using inductively coupled plasma mass spectrometry and normalized for mass of bacterial DNA per sample to exclude confounding by varying amounts of plaque per site. Statistical analysis was performed using generalized estimated equations to adjust for clustering of implants per participant.

RESULTS: Implants with peri-implantitis harbored significantly higher mean levels of titanium (0.85 ± 2.47) versus healthy implants (0.07 ± 0.19) after adjusting for amount of plaque collected per site ($P = 0.033$).

CONCLUSIONS: Greater levels of dissolved titanium were detected in submucosal plaque around implants with peri-implantitis compared with healthy implants, indicating an association between titanium dissolution and peri-implantitis. Factors triggering titanium dissolution, as well as the role of titanium corrosion in the peri-implant inflammatory process, warrant further investigation.

KEYWORDS: Biofilms; corrosion; dental implants; peri-implantitis; titanium

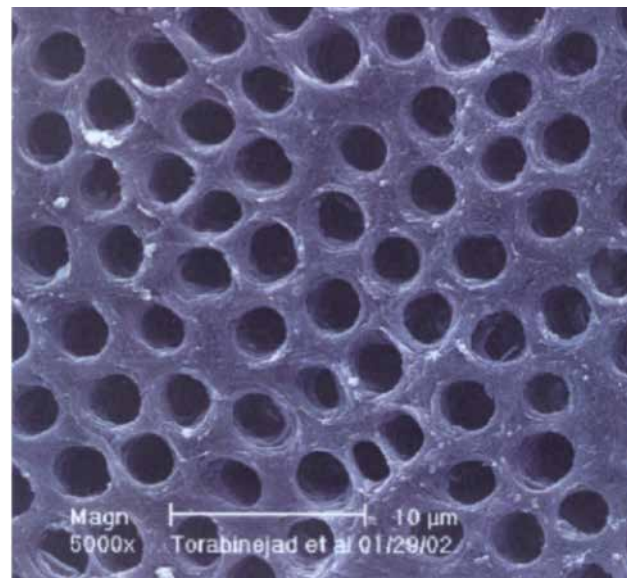
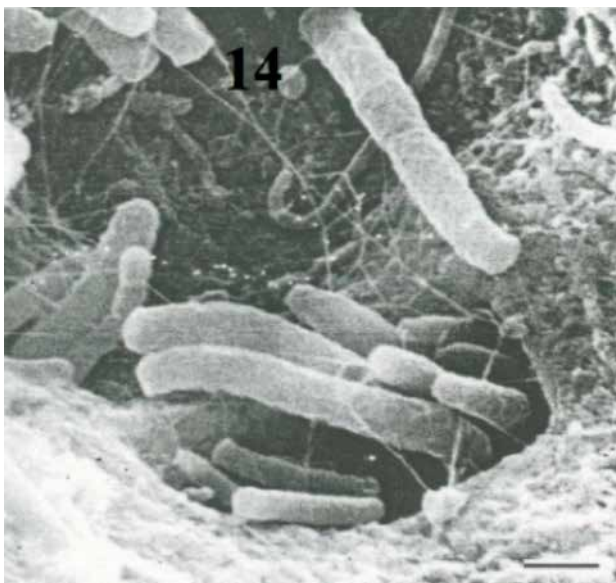
PMID: 27858551 DOI: 10.1902/jop.2016.160524

As a possible therapy against titanium periimplantitis we recommend raising the amounts of bone building factors by supplementing Vitamin C and D3, Vitamin K2/mk7, Magnesium, Zink, Omega 3 as well as inhibiting the osteoclasts by giving acetylsalicylic acid and then again vitamin D3 and C to the patient.

e) Limitation of endodontic (root canal) treatment:

Each endodontically treated tooth, no matter how professionally the treatment has been performed with a microscope, remains a dead organ in the body. A cross-sectional view through the dentin shows, that no dentist in the world will be able to sufficiently clean and fill (technical limitation) the 30.000 to 75.000 dentinal tubules per mm², add up to 0,5-3 miles in length.

A further immunological limitation is the fact that pathogens (bacteria, viruses, fungi etc.), which are 0,6-1 μm in size, easily infiltrate the dentinal tubules, which measure 1-3 μm in diameter. The macrophages, which are about 5-20 μm in size, cannot phagocyte the germs inside the narrow tubules. New studies show the connection between endodontically treated teeth and general illnesses:



Increased Root Canal Endotoxin Levels are Associated with Chronic Apical Periodontitis, Increased Oxidative and Nitrosative Stress, Major Depression, Severity of Depression, and a Lowered Quality of Life.

Gomes C¹, Martinho FC², Barbosa DS³, Antunes LS¹, Póvoa HCC⁴, Baltus THL³, Morelli NR³, Vargas HO⁵, Nunes SOV³, Anderson G⁶, Maes M^{7,8,9,10,11}.

Author information

Abstract

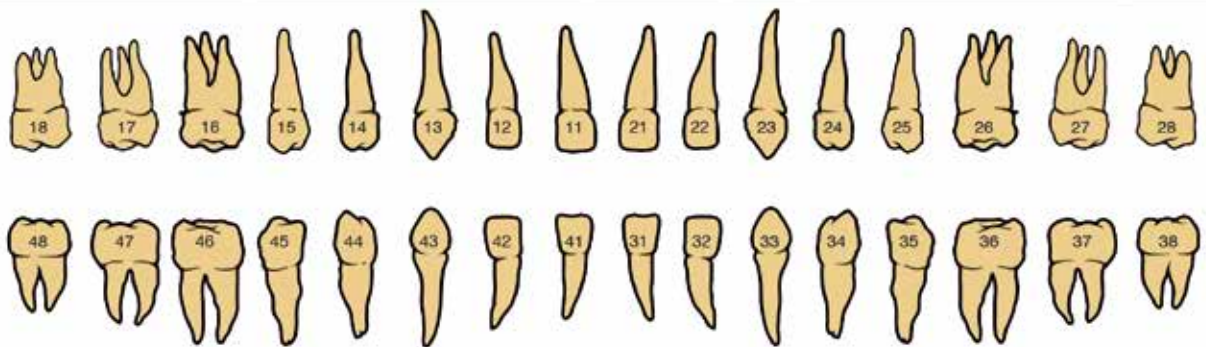
Evidence indicates that major depression is accompanied by increased translocation of gut commensal Gram-negative bacteria (leaky gut) and consequent activation of oxidative and nitrosative (O&NS) pathways. This present study examined the associations among chronic apical periodontitis (CAP), root canal endotoxin levels (lipopolysaccharides, LPS), O&NS pathways, depressive symptoms, and quality of life. Measurements included advanced oxidation protein products (AOPP), nitric oxide metabolites (NOx), lipid peroxides (LOOH), -sulfhydryl (SH) groups, total radical trapping antioxidant parameter (TRAP), and paraoxonase (PON)1 activity in participants with CAP, with and without depression, as well as healthy controls (no depression, no CAP). Root canal LPS levels were positively associated with CAP, clinical depression, severity of depression (as measured with the Hamilton Depression Rating Scale (HDRS) and the Beck Depression Inventory) and O&NS biomarkers, especially NOx and TRAP. CAP-related depression was accompanied by increased levels of NOx, LOOH, AOPP, and TRAP. In CAP participants, there was a strong correlation ($r = 0.734$, $p < 0.001$) between root canal LPS and the HDRS score. There were significant and positive associations between CAP or root canal endotoxin with the vegetative and physio-somatic symptoms of the HDRS as well as a significant inverse association between root canal endotoxin and quality of life with strong effects on psychological, environmental, and social domains. It is concluded that increased root canal LPS accompanying CAP may cause depression and a lowered quality of life, which may be partly explained by activated O&NS pathways, especially NOx thereby enhancing hypernitrosylation and thus neuroprogressive processes. Dental health and "leaky teeth" may be intimately linked to the etiology and course of depression, while significantly impacting quality of life.

1.6 MERIDIAN SYSTEM AND LINKS TO ORGANS

Meridian system: The entire surface of the body is covered with a network of energy channels (meridians), which appear through the muscle fascia at certain switching points (acupuncture points) as small, anatomically proven neurovascular bundles. The transmission of information along the meridians has also been demonstrated by injecting radioactively labelled substances at the acupuncture points. Each of these meridians traverses a specific tooth or tooth group and is associated with certain anatomical structures and organ zones. An inflammation or a disturbance in a specific dental zone thus almost always results in a disturbance in the zone governed by this meridian, and, conversely, in an improvement once the disturbance has been eliminated. If a biological dentist is familiar with the teeth and dental zones that are linked to a particular organ or organ zone, this allows him or her to have a targeted consultation with the patient based on disturbances along this meridian. In turn, the dentist may stimulate improvement along the meridian by means of neural therapy in the corresponding tooth zone. This is a very convincing diagnosis and therapy simulation method for patients, because temporary improvement is experienced within a few seconds or within a few hours. Improvement may be felt in the arm, for example, despite it being a tooth that received the injection.

In addition to the narrowly defined and precise remote effect of the meridians, there exists a so called myotom, which refers to the oral cavity: C1- C7. Basically all dental disturbances in the mouth appear as neck pains, usually associated with limitations of the mobility of the head.

SENSORY ORGANS	inner ear	tongue/taste	nose/olfactory sense	eye	nose/olfactory sense/frontal sinus	nose/olfactory sense/frontal sinus	eye	nose/olfactory sense	tongue/taste	inner ear
JOINTS	shoulder elbow	jaw	shoulder elbow	rear knee	hip sacrum-coccyx		rear knee	shoulder elbow	jaw	shoulder elbow
	hand ulnar foot plantar toes	anterior knee	hand radial foot big toe	foot	foot		hand radial foot big toe	anterior knee	hand ulnar foot plantar toes	
SPINAL CORD SEGMENTS	Th 1 C8 Th 7 Th 6 Th 5 S 3 S 2 S 1	Th 12 Th 11 L 1	C 7 C 6 C 5 Th 4 Th 3 Th 2 L 5 L 4	Th 8 Th 9 Th 10	L 3 L 2 S 4 S 5 Co	L 3 L 2 S 4 S 5 Co	Th 8 Th 9 Th 10	C 7 C 6 C 5 Th 4 Th 3 Th 2 L 5 L 4	Th 12 Th 11 L 1	Th 1 C8 Th 7 Th 6 Th 5 S 3 S 2 S 1
VERTEBRAE	B 1 C 7 B 6 B 5 S 2 S 1	B 12 B 11 L 1	C 7 C 6 C 5 B 4 B 3 L 5 L 4	B 9 B 10	L 3 L 2 Co S 5 S 4 S 3	L 3 L 2 Co S 5 S 4 S 3	B 9 B 10	C 7 C 6 C 5 B 4 B 3 L 5 L 4	B 12 B 11 L 1	B 1 C 7 B 6 B 5 S 2 S 1
ORGANS	right heart	pancreas	lung	right liver	right kidney	left kidney	left liver	lung	spleen	left heart
YIN	11-13 h	9-11 h	3-5 h	1-3 h	17-19 h	17-19 h	1-3 h	3-5 h	9-11 h	11-13 h
	duodenum allergies	right stomach	colon	gall-bladder	right bladder urogenital region	left bladder urogenital region	left bile ducts	colon	left stomach	jejunum ileum allergies
YANG	13-15 h	7-9 h	5-7 h	23-1 h	15-17 h	15-17 h	23-1 h	5-7 h	7-9 h	13-15 h
ENDOCRINE GLANDS	anterior pituitary	parathyroid thyroid	thymus posterior pituitary	epiphysis	epiphysis	posterior pituitary	thymus	thyroid parathyroid	posterior pituitary	
OTHER	CNS psyche	right mammary gland			back pain headache	back pain headache			left mammary gland	CNS psyche



OTHER	energy balance			right mammary gland					left mammary gland				energy balance
ENDOCRINE GLANDS VASCULAR SYSTEM	peripheral nerves	arteries	veins	lymphatic vessels	gonads	adrenal gland	adrenal gland	gonads	lymphatic vessels	veins	arteries	peripheral nerves	
YANG	11-13 h	3-5 h		9-11 h		1-3 h	17-19 h	17-19 h	1-3 h	9-11 h		3-5 h	11-13 h
YIN	13-15 h	5-7 h		7-9 h		23-1 h	15-17 h	15-17 h	23-1 h	7-9 h		5-7 h	13-15 h
	right heart cardiovascular system	right lung		pancreas		right liver	right kidney	left kidney	left liver	spleen		left lung	left heart cardiovascular system
ORGANS	right ileum allergies	right colon ileosacral area		right stomach pylorus		gall-bladder	right bladder urogenital area	left bladder urogenital area	left bile ducts	left stomach		left colon	jejunum ileum allergies
VERTEBRAE	C 7 B 1 B 5 B 6 S 1 S 2 hip	C 7 C 6 C 5 B 4 B 3 L 5 L 4		B 12 B 11 L 1		B 9 B 10	L 3 L 2 Co S 5 S 4 S 3	L 3 L 2 Co S 5 S 4 S 3	B 9 B 10	B 12 B 11 L 1		C 7 C 6 C 5 B 4 B 3 L 5 L 4	C 7 B 1 B 5 B 6 S 1 S 2 hip
SPINAL CORD SEGMENTS	Th 1 C8 Th 7 Th 6 Th 5 S 3 S 2 S 1	C 7 C 6 C 5 Th 4 Th 3 Th 2 L 5 L 4		Th 12 Th 11 L 1		Th 8 Th 9 Th 10	L 3 L 2 Co S 5 S 4	L 3 L 2 Co S 5 S 4	Th 8 Th 9 Th 10	Th 12 Th 11 L 1		C 7 C 6 C 5 Th 4 Th 3 Th 2 L 5 L 4	Th 1 C8 Th 7 Th 6 Th 5 S 3 S 2 S 1
JOINTS	shoulder - elbow			anterior knee		posterior knee		posterior knee		anterior knee		shoulder - elbow	
	hand ulnar foot plantar toes	hand radial foot big toe		jaw		hip	sacrum-coccyx foot	sacrum-coccyx foot	hip	jaw		hand radial foot big toe	hand ulnar foot plantar toes
						foot		foot					
SENSORY ORGANS	ear/retina	ethmoidal cells/nose/olfactory sense		sinus maxillaris/tongue/sense of taste		eye/visual sense	frontal sinus/nose/olfactory sense	frontal sinus/nose/olfactory sense	eye/visual sense	sinus maxillaris/tongue/sense of taste		ethmoidal cells/nose/olfactory sense	ear/retina

2. Biological dentistry

2.1 DEFINITION

This term refers to dentistry that considers the 'human' organism in a 'biological' way. The masticatory system is recognised to be closely linked to the entire body. Almost all, of the sensory organs are arranged around the masticatory system, and the brain is located in its immediate vicinity. The importance of the masticatory system is also supported by the fact that the 5th cranial nerve (trigeminal nerve) occupies 50 % of the total space of the 12 cranial nerves.

Not only do the meridians traverse the tooth system, they are also activated on a daily basis by the 15.000 tooth contacts. Edentulism (toothlessness) therefore involves the degeneration of the associated meridian, which may be sought to be offset by acupuncture or reflexology. It is thus extremely important to ensure that each tooth position and its corresponding meridian is activated by a healthy tooth, or at least a neutral ceramic implant.

Both the statics of the spine and the blood circulation and venous drainage of the brain depend on the status of the mandibular joint. On the one hand, a loss of bite height compresses the region containing the large vessels supplying the brain. This means that the blood flow to the brain is not sufficiently guaranteed (a

1 mm loss in bite height reduces the flow of blood in the brain by around 50 %!). On the other hand, toxins and waste products from the brain can only drain off via a sufficiently wide jugular vein. This is all the more important as the brain does not have a lymphatic system, such removal being performed by the 'glyA lymphatic system': During the night, the brain cells shrink, generating a cavity between the cells through which these toxins can drain off. A precondition for this, however, is that all sources of stress are deactivated at night. These include all EMF sources, such as mobile communication devices or Wi-Fi, etc.

There is no other organ or body area that is so loaded with heavy metals, alloys, toxic materials, dead organs or inflammations as our oral system is. Dentistry is the only medical discipline to even consider leaving a dead organ in the body. This is why some 60 % of all chronic diseases originate in the masticatory system.

Another fatal disturbing factor of modern times is due to the gums being part of the ectoderm (body exterior), while the bones are part of the endoderm (body interior). If we eat something toxic, this contacts our stomach and intestine on the ectoderm, i.e. on the exterior of the body. It will only reach the endoderm once it has been absorbed. If then the link between the gums (ectoderm) and the bones (endoderm) is destroyed, as is the case in

almost all people suffering from periodontitis, pathogens and toxins can enter the body directly just like a Trojan horse. This is a shock to the immune system and is the reason why gum diseases increase the risk of heart diseases. It is an outstanding feature of ceramic implants, that the gum grows onto the ceramic, thereby securely locking the 'immunological gateways'. By contrast, no gum tissue ever grows onto titanium, meaning that a titanium implant keeps the immunological gateways wide open permanently.

The biological dentistry approach lies in accepting these logical relationships, taking them into account in all decisions and actions, and deriving a treatment concept from them that is as simple as it is highly efficient. All non-biological or non-neutral materials are removed, duly taking maximum protective measures. All dead organ parts and inflammations are removed while activating the immune system without damaging it in the process by the use of chemical drugs. The masticatory system is preserved and reconstructed using metal-free and neutral materials, always taking care to maintain or restore the anatomy, bones and soft tissue, and therefore aesthetics.

The links between disorders of the masticatory system are called "focal infections". This means that the focus is located in one area of the body, but the reaction occurs elsewhere. The knowledge of the need to restore focal infections has long been described by Weston Price, who has been the president of the American Dental Association for over 30 years. His work is supported by biological dentists and doctors like Hans Meining, Johann Lechner, Boyd Haley, Dietrich Klinghardt, Joachim Mutter and many others. Up until now, however, the dilemma has been that at the end of the 'necessary clean-up', a 'trail of destruction' was often left behind. Where gaps then had to be treated further with prostheses and bone grafts.

Often, patients did not feel able to engage socially for weeks, suffered severe pain and massive swelling. And it sometimes took years to regain even a semblance of anatomical and aesthetic appeal.

This was the handicap of holistic dentistry in the past: although patients understood the need for radical treatment to achieve better health, they did not agree with the solution being offered.

2.2 BIOLOGICAL DENTISTRY VERSUS HOLISTIC/NATUROPATHIC DENTISTRY

A less radical but also less effective discipline was established, 'holistic, or naturopathic dentistry'. It was attempted to diminish disturbances and positively impact outcomes, predominantly by way of subjective, i.e. not reproducible and scientifically proven, measurement procedures and treatments. For example, 'biocompatible alloys' were continued to be used after having been tested previously, or instead of removing infected teeth, attempts were made to achieve positive outcomes by way of neural therapy. Although there were certainly some successes, these did not extend to the real linking the masticatory system with chronic disease.

Let us take a look again at biological dentistry. We need excellent, experienced surgeons to practise this kind of treatment, as complicated displaced wisdom teeth, inflammations or foreign bodies in proximity of the nerve or maxillary sinus, or ankylotically impacted root canal-treated teeth, must be removed carefully whilst bone must be preserved. Eminent surgeons who had trained to a high level and were in high-profile practice could not get to grips with 'holistic dentistry' and dismissed it as an 'esoteric trend'. Holistic dentists, however, had not undergone the surgical training required in order to actually eliminate the disturbances using radical surgical measures, rather than just attempting to influence them.



Removal of both middle front teeth, placement of immediate implants and immediate temporary restorations (below). Not only did the patient's disc complaints 'disappear' after the surgery, but the temporary restorations are much more attractive than the old ceramic crowns.

2.3 THE SWISS BIOHEALTH CONCEPT

Since the year 2001, the 'Dr Volz biological dentistry' concept allows us to fill the gaps created by radical restoration surgery by using the completely neutral and metal-free fixed ceramic implants developed by Dr Volz.

Following the introduction of the 'SCC Short Cut Concept by Dr Volz' in 2014, we have been in the unprecedented situation that we can now treat the gaps created by radical surgery with ceramic implants and fixed restorations in just a single sitting. Moreover, the patient now does not have to suffer severe pain or swelling, instead being fully mobile and able to engage socially within just a few days.

At the same time, the anatomy, the bones and the gums are preserved, and the 'principle of physical integrity' thus safeguarded.

'Proof of concept' is the fact that the most common occupational group receiving implants from Dr Volz are dentists, and in particular, implantologists. There are closely followed by alternative practitioners and doctors and therapists working in biological medicine.

With this immediate implant placement protocol, we can now offer a solution that is acceptable for patients. It allows us to eliminate interference fields, a necessity known for over 100 years. Countless numbers of patients who were aware that treatment was necessary but who were not happy with the solution offered back then are now flocking to practices and clinics that run the 'SCC Short Cut Concept by Dr Volz' and 'Dr Volz Biological Dentistry'.

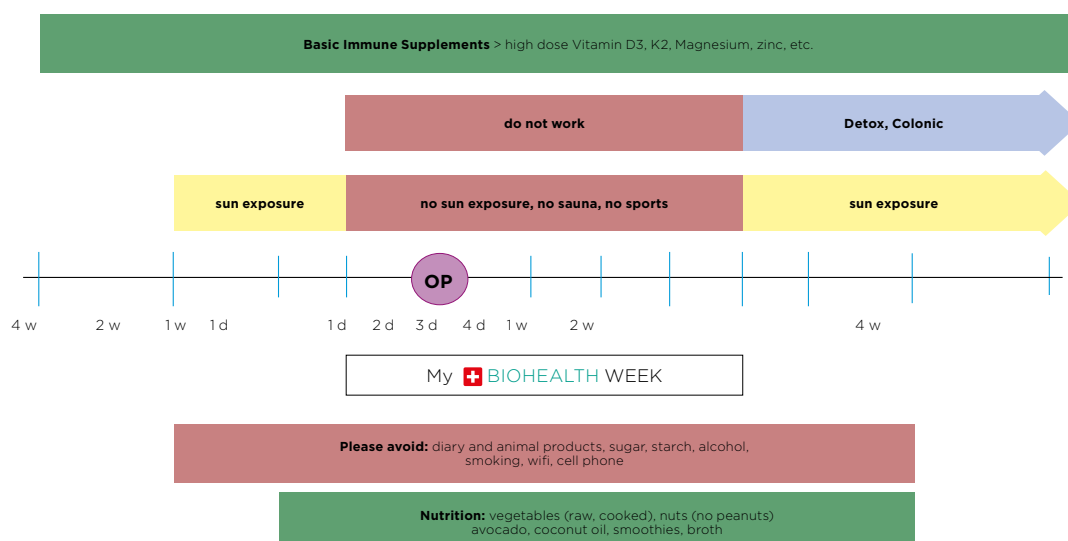
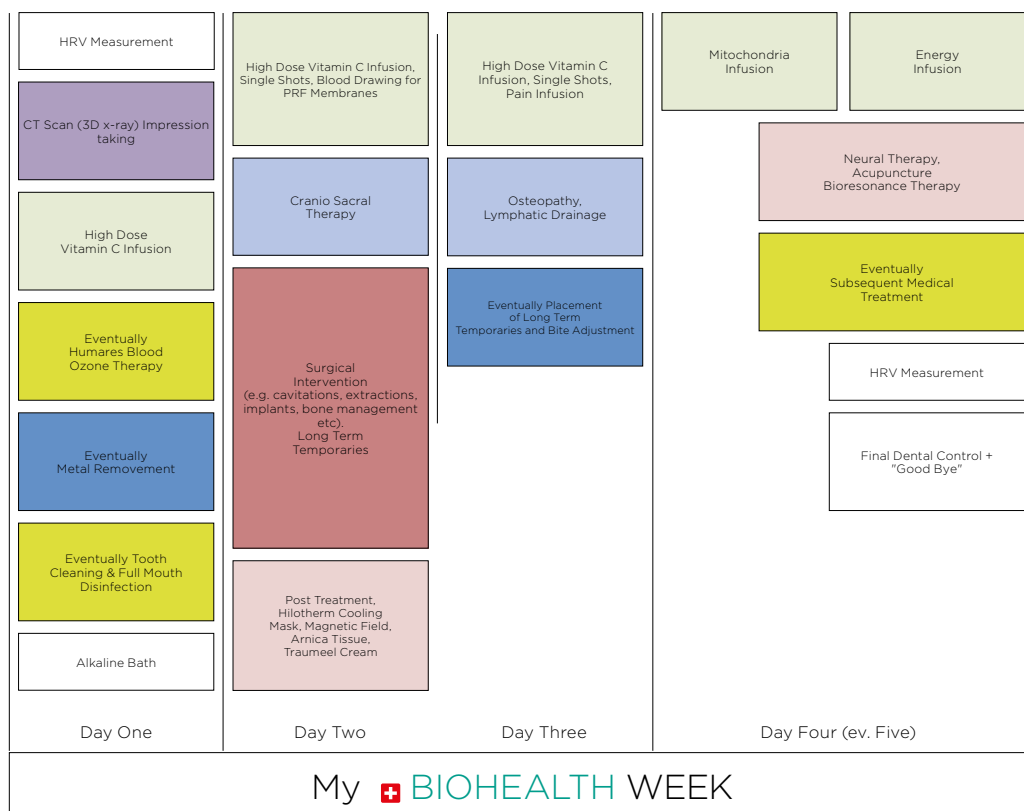
2.4 THE 'ALL-IN-ONE' CONCEPT AND MY BIOHEALTH WEEK

A logical development that evolved from Dr Volz's 26 years of experience was the establishment of the SWISS BIO-HEALTH® CLINIC in 2016 and the 'ALL-IN-ONE' concept that was introduced there: in just a single session or run of sessions, all dental problems are eliminated at once. When all potential disturbing factors such as metals, osteonecrosis, root canal-treated teeth and other interference fields are completely removed, the immune system is able to carry out its work in an optimal manner, to reliably assimilate the implants and to eliminate system stress. This is even more important given that the ceramic implants are completely neutral, and will only be assimilated into healthy bones with a functioning immune system. Titanium implants are assimilated by way of chronic inflammation by releasing inflammatory mediators such as $\text{TNF}\alpha$ and $\text{IL1}\beta$, and can therefore heal into poor-quality bones.

According to the Consensus Conference in 2006, however, over 80 % of patients experienced gum inflammation and over 50 % experienced inflammation of the bone within just five years after having recieved titanium implants.* This peri-implantitis does not exist with zirconia ceramic implants and justifies the higher preliminary expenditure. Thanks to the very consistent 'ALL-IN-ONE' concept', we at the SWISS BIOHEALTH® CLINIC were able to achieve success rates of around 99 %, with the positive ancillary benefit of patients being able to receive the entire treat-

ment in just one session or run of sessions, the foundations for the health benefits being laid as quickly as possible, and the patients leaving the clinic with fixed and aesthetically pleasing temporary restorations.

The diagrams below show the order in which treatment is carried out using 'THE SWISS BIOHEALTH® CONCEPT', and how patients should prepare the weeks before and after treatment. The procedure is based on the 'BTP BIOLOGICAL TREATMENT PROTOCOL' developed by internationally recognised specialists in biological medicine and dentistry.



* (Peri-implant mucositis in 80 % - peri-implantitis in >56 % of subjects. Consensus report of the sixth European Workshop on Periodontology, 2006).

3. 'THE SWISS BIOHEALTH® CONCEPT' system

In very simple terms, the objective of 'THE SWISS BIO-HEALTH® CONCEPT' could be defined thus: leveraging immunology as a partner. To carry out radical but stress-free (atraumatic), early, preventive and minimally invasive procedures to prevent swelling and pain. To achieve the desired goal in as few sessions as possible while remaining socially engaged. To use as few foreign materials as possible and – when their use is necessary – to use those materials that are as biologically-congruent as possible. AND: To keep the patient in the parasympathetic mode as much as possible throughout the therapy.

Immunology, the teaching of the endogenous defense against pathogens and foreign substances is not depending on the dose as opposed to toxicology, the teaching of toxins, which depends on the dose. The three most important cytokines of innate immune response are $\text{TNF}\alpha$, $\text{NF-}\kappa\text{B}$ und $\text{IL-1}\beta$.

3.1 DIAGNOSTICS:

a) Case history, findings, examination: It goes without saying that all conventional aspects of dental examination and diagnosis must be carried out. These include case history, findings, x-rays, a functional examination, modelling, etc.

b) DVT: Additionally, a three-dimensional DVT (digital volume tomography) x-ray image is essential in order to locate inflammations, ischaemic osteonecrosis (NICO = neuralgia-inducing cavitational osteonecrosis) as well as being able to identify and locate foreign bodies and dispersed metals.



c) LDL and vitamin D3 (25-OH) analysis: A high LDL value (low-density lipoprotein = 'bad cholesterol') of over 1.4 g/L indicates a high propensity for inflammation. A low D3 value of below 70 ng/ml reduces the chance of forming healthy bones, and correlates to a weak immune system.

CHOUKROUN, Joseph, et al. Two neglected biologic risk factors in bone grafting and implantology: high low-density lipoprotein cholesterol and low serum vitamin D. *Journal of Oral Implantology*, 2014, 40. Jg., No. 1, pp. 110-114.

SCHULZE-SPÄTE, Ulrike, et al. Systemic vitamin D supplementation and local bone formation after maxillary sinus augmentation—a randomized, double-blind, placebo-controlled clinical investigation. *Clinical Oral Implants Research*, 2015.

BRYCE, G.; MACBETH, N. Vitamin D deficiency as a suspected causative factor in the failure of an immediately placed dental implant: a case report. *Journal of the Royal Naval Medical Service*, 2013, 100. Jg., No. 3, pp. 328-332.

COOPER, Lyndon F. Systemic effectors of alveolar bone mass and implications in dental therapy. *Periodontology* 2000, 2000, 23. Jg., No. 1, pp. 103-109.

d) Immunological tests: Additional tests can be carried out that are, in any case, deeply entrenched within the ambit of medicine, and that may, if required, be carried out in collaboration with a medical physician/alternative practitioner. Porphyrins testing, nitro stress test, stool examination, HPU/KPU analysis, genetic tests, IGG4 nutritional analysis, etc.

e) Intolerance tests: If the patient has already received titanium implants, a Melisa test should be carried out as a rule (www.melisa.org), as well as a titanium stimulation test (www.imd-berlin.de), because titanium is the only material which will not be removed from the patient automatically.

Due to the upcoming transition to the new 5G mobile network, by now we recommend the prophylactic removal. In the 3G-/4G field the temperature of the bone around a titanium implant increases up to 4°C during a phone call already.

f) Meridian analysis: Once inflammations and the lesions have been identified on the 3D recording, these are 'matched', or correlated, with the patient's general complaints by applying the meridian system. In all patients, we invariably notice a plethora of general medical symptoms along the meridians that run through the lesion, interference fields or areas of inflammation.

g) Neural therapy simulation: The correlations identified under f) can now be simulated, so that they become tangible and comprehensible for the patient. This is a perfect tool for convincing the patient of the need for restoration and to determine whether biological dental therapy will result in an improvement in general medical parameters. As a rough guide, actual improvement will be about twice the improvement spontaneously occurring by way of the simulation.

A vial of procaine-steigerwald 2 % is to be injected into the fold of the region in question. Excess caution is not necessary: a palpable recess should be created and approx. 0.3 ml of fluid firmly injected. This pain caused by penetration creates what is known as a viscerocutaneous reflex, which awakens the system in a specific way (Wikipedia: the viscerocutaneous reflex is a reflex that causes pain arising in internal organs to be perceived as pain on the skin. The damaged organ and the painful area on the surface of the body can sometimes be located far apart from one another). The patient should keep their eyes open during this procedure so that a possible constriction of the pupils can be observed. If this occurs, it indicates that as a result of the neural therapy injection, the patient's nervous system has temporarily switched from the sympathetic to the parasympathetic mode via a vasovagal reaction. Patients who suffer from chronic inflammation (silent inflammation) are continuously in a 'sympathetic state' (flight and fight and defence, accompanied by a rush of adrenaline). Healing can only ever take place in the parasympathetic nervous system state. Spontaneous constriction of the pupils, also observable when under the influence of drugs, is a direct consequence of switching to the parasympathetic nervous system and thus to relaxation and healing. If a connection exists between the 'neurally treated dental zone that has been injected' and a general medical disease or disorder, the patient will respond by showing improvement within a few seconds, and no later than within eight hours.

Procaine is a non-addictive, synthetic derivative of cocaine, which, prior to the introduction of procaine, was the most important pain-alleviating substance. It was also an ingredient of the earliest version of Coca-Cola®. On the one hand, procaine is an anaesthetic (Novacain®) that is free from side effects and that shuts down the conduction of stimuli. It has very strong anti-inflammatory effects (inhibits production of IL6 and CRP), stabilises the nerve cell membranes, stimulates the parasympathetic nervous system (Vagus reaction, vasodilatation), promotes circulation (antidote to adren-

alin) in tissue and is regarded as a free radical scavenger. Furthermore, it continues to exercise an 'attractant effect' (chemotaxis) on immune cells. Up to 200mg Procain (20ml or 10 vials of 1%-solution) can be injected at once. When injected, procaine dissolves to its elements dimethylaminoethanol, which is closely related to the parasympathetic activating neurotransmitter acetylcholin and PABA, an element of folic acid.



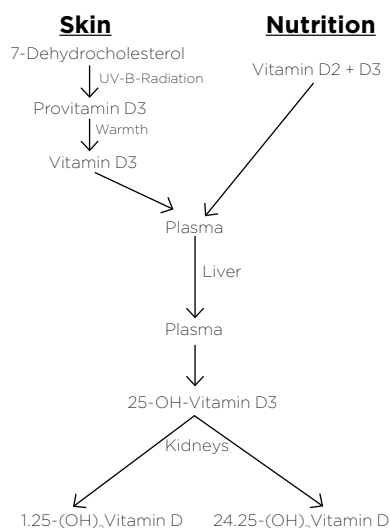
3.2 IMMUNOLOGICAL PRE-TREATMENT AND POST-TREATMENT

In the 21st century, it ought to seem logical for it to no longer be acceptable to stereotypically use an oral antibiotic to cover oral surgical interventions, to prescribe chlorhexidine mouthwash or to put up with a huge swelling for several days. Interventions all arise from a very mechanistic world view that promotes fighting and killing bacteria without considering the side effects. In different ways, antibiotics (anti bios = against life) always end up causing lysis (rupture) of bacterial cell membranes, resulting in huge amounts of endotoxins (in other words, the digestive tract content of bacteria) being released into the system, which can lead to septic shock. Whilst taking oral antibiotics, patients always feel weak and suffer from diarrhoea and vomiting, since the valuable intestinal bacteria are destroyed. Fungal infections of the intestines or genitals often result as well. We see the same effect after using chlorhexidine, where fungi in the mouth become rife. Furthermore, the indiscriminate and routine use of oral antibiotics also promotes the development of resistances, and their life-saving effect in the instance of truly dangerous diseases is diminished.

In 'biological dentistry', we focus on strengthening the immune system, on local sterilisation and on activating bone healing with natural or intravenously administered substances in order to prevent side effects and negative concomitant symptoms. Antibiotics, when provided i.v. do not show the above mentioned negative side effects.

We need to make ourselves aware of the fact that the necessary systems are already present in our bodies, but regrettably often no longer function. We have distanced ourselves from nature to too great an extent: from an evolutionary point of view, we were created to move around unclothed at the equator and, indulging in plenty of exercise, to feed on fresh natural products, which would provide us with an adequate supply of all vitamins (especially vitamin C) and minerals.

Unfortunately, the current reality is that we live fully clothed all day, in enclosed spaces, far away from the equator, without much movement, and subsequently have a reduced metabolism. When we do go out into the sun, we 'protect' our bodies with sunscreen and block the intake of vitamin D3. This stops being formed in our skin upwards of sun protection factor 2. The widespread disorder of obesity also reduces D3 absorption, because vitamin D3 can be formed in the skin, but is not released into the blood. Apart from this, nearly all sunscreens contain titanium dioxide (E171).



a) Strictly speaking, vitamin D3 is not a vitamin, but a hormone imperative for unhindered bone healing, since it inhibits osteoclasts and activates osteoblasts.

Furthermore, it controls over 1.000 different genes and strengthens the immune system by decreasing the acquired immune response (chiefly overactive in the instance of autoimmune diseases) and increasing the innate non-specific immune response. Among other things, antimicrobial proteins (AMPs) are strengthened. AMPs kill micro-organisms, i.e. bacteria and viruses, often several times faster and more effectively than the acquired immune system, by activating specialised immune cells. Flu resistance is due to the inhibition of the NFKB transcriptase factor. Furthermore, it is now considered a fact that vitamin D3 plays an essential role in the prevention of both heart attacks and cancer.

On a sunny day at the equator, a person synthesizes about 20.000 I.U. (International Units) of Vitamin D3 per hour. In Germany, the recommended daily dose was increased from 400 units to 1.000 units a day only in 2015. We assume that a protective dose should be 20.000 I.U. per day, and that this amount should optimally prepare the patient for a surgical procedure.

Solely Cod liver oil has an significant amount of 13.200 I.U. per 100g. Typical deficiency symptoms are rickets, osteoporosis, infection-susceptibility, gum infections and many more. The general dose of 20.000 I.U./day, prescribed four weeks prior to the date of surgery, achieves a blood concentration of around 70 to 120 ng D3/ml. This is roughly equivalent to the level of vitamin D3 that a person living in the equatorial region would have, and means that the patient is optimally prepared for an operation. Unfortunately, however, 85 % of all Germans fall below even the German minimal target value of 30 ng D3/ml. They are in a state of 'immunological hibernation' and are not able to let bones and wounds to heal completely and without complications. It is important for long-term treatment to combine vitamin D3 with vitamin K2-mk7, as vitamin D3 depletes the body's supply of vitamin K2. K2 deficiency can manifest itself as cardiac disorders, amongst other things. Combining D3 with K2-mk7 also prevents hypercalcaemia, which is otherwise caused by an overdose of D3. The ratio of vitamin D3 to K2-mk7 should be 10.000 I.U. of D3 to 100 µg of K2-mk7.

Vitamin K2/mk7 is responsible for transporting the minerals, that have been resorbed by D3 in the intestine and reabsorbed in the terminal renal tubules, from the blood into the bone. A high mineral blood level might lead to arteriosclerosis. Vitamin K2/mk7 therefore protects the patient against the wide spread disease arteriosclerosis.

Recently, the so-called Vitamin-D3-receptor-blockade has been discussed. The blockade is initiated by activation of originally “silent” retroviruses, embedded in the DNA, a process caused by environmental and dental toxins. That explains why surprisingly lower doses of Vitamin D3 are needed after a restoration according to the ALL-IN-ONE-Concept has taken place, in order to keep a blood level of 70ng/ml upright. If a vitamin-D3-receptor-blockade exists before a patient is operated, the system needs to be competitively flooded with high doses of Vitamin D3 to reach the required blood level of >70ng/ml. In almost all cases this can be achieved by supplementing the BASIC IMMUNE mixture. In rare cases doses of 100.000 I.U. per day are needed.

b) According to the BASIC IMMUNE PROTOCOL formulated by Dr Klinghardt and Dr Volz, patients take vitamins and minerals in order to prepare for an operation:

- One sachet of energising ingredients (Energy) in the morning:

Micro-nutrient	Details	Morning dosage	Unit
Vitamin A	Acetate	2.400	µg
Vitamin K2	mk7	200	µg
Bromelain	Bromelain	1.100	F.I.P.
L-arginine	L-arginine	1.500	mg
Folic acid	Folinic acid/ methylfolate	2.500	µg
Vitamin B12	Methylcobalamine	2.000	µg
Vitamin B2	Riboflavin	50	mg
Vitamin D3	Cholecalciferol	500	µg
Vitamin C	Ascorbic acid	2.000	mg
Vitamin E	Tocotrienols	200	mg
Q10	Coenzyme Q10	100	mg
Selenium	Selenomethionine	600	µg

- One sachet of relaxing and sleep-inducing ingredients (Relax) in the evening:

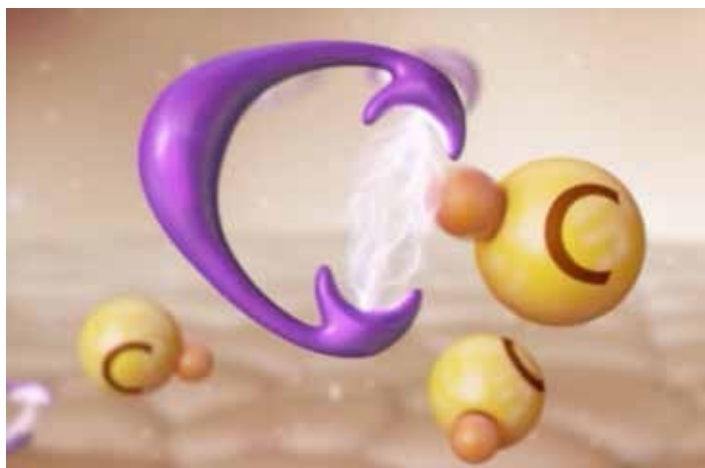
Micro-nutrient	Details	Evening dosage	Unit
L-arginine	L-arginine	2.500	mg
ALA	Alpha lipoic acid	600	mg
Lysine	Lysine	2.000	mg
Vitamin B6	Pyridoxal-5-phosphate	30	mg
Magnesium	Magnesium-citrate	474	mg
Zinc	Zinc-citrate	56	mg
Manganese	Manganese-sulphate	6	mg

Intake of the BASIC IMMUNE mixture begins four weeks prior to the surgical intervention, and is taken for another four weeks thereafter. This ensures that reserves are wholly replenished, while the relatively short intake period of two months eliminates the risk of any damage done by over-dosing. The simple dosage method involves taking two sachets a day, one in the morning and one in the evening. This allows correct intake, without compromising the patient's time and is favored by people who travel a lot.

c) Vitamin C: this nutrient is as important as vitamin D3 for wound healing and protection against infection. Humans are so-called 'defective mutants', as we can no longer independently synthesise vitamin C, as our small intestines lack the enzyme capable of synthesizing the vitamin out of glucose. We must take it in via our diet instead. In Germany, the official recommended daily dose is 75 mg, is barely enough to prevent scurvy. Two-time Nobel Prize winner Prof. Linus Pauling recommended uptake of 10 g to 20 g of vitamin C daily. He argued that animals, for example goats, can still independently metabolise 20-100 mg of vitamin C per day from glucose and would produce similarly high amounts at the respective body weight. In stressful situations, animals even produce significantly higher amounts of vitamin C.

In the condition of acute stress, rats can thus produce up to 10 g of vitamin C in fractions of a second. In a study of untreatable cancer patients, Pauling and Cameron showed that after one year of taking 10 g of vitamin C daily, 22 % of the patients were still alive compared to 4 % in the control group without vitamin C supplementation. Doses of up to 10 g daily show no side effects whatsoever, but must be given intravenously since oral intake is limited to approximately 500 mg per day. For one-off administration before, during and after jaw

surgery, a 15 g dose of vitamin C is recommended to reach an overall dose of 45 g Vitamin C perioperatively. Merely the Esther-C Form allows oral uptake of higher doses of 2 up to 10 g daily through an adaptation and training effect. (DNA-products: Ester-C).



Vitamin C is not only the most effective radical catcher (antioxidant) reducing tissue stress, but also has an osteoblast activating, osteoclast suppressing effect similar to that of vitamin D. It therefore supports bone building and prevents bone loss. Additionally, it has detoxing and anti-inflammatory abilities, and supports the construction of collagen and connective tissue. Typical deficiency symptoms are skury, parodontitis (gum infection), wound healing disorders, and infection-susceptibility. In contrary to common wisdom, orange juice contains merely 52mg Vitamin C per 100 ml. Surprisingly little, compared to the acerola cherry with 1.700 mg per 100g!

- d)** Single shots: for all operations involving inflammation, one single shot each of dexamethasone (8 mg) and Sobelin 600 mg or Augmentin 625 mg (dissolved in 50 - 100 ml of NaCl) should be administered intravenously prior to the operation to prevent the 'bad inflammation' caused by giant cells leading to tissue destruction. This does not affect the 'good inflammation', which is based on macrophages, leukocytes and monocytes and which produces new and healthy tissue.
- It is important to ensure that all intravenous doses are administered prior to treatment so that the PRF and the blood clot (formed in extraction sockets, NICO cavities or the maxillary sinus) does not have any contact with the bloodstream until vascularisation is already 'loaded'

with the valuable substances. Application of cortisol (dexametasone) increasingly gained importance in recent years, because over 50% of the population of the industrial nations suffers from "adrenal fatigue". That means that the patient cannot produce any endogenous cortisol anymore and is at special risk for wound healing disorders and other complications. This suprarenal deficiency is caused by a longtime overproduction of cortisol, due to stress. The result is a loss of ability to produce cortisol ("the bank is empty") and an aggravated production of other hormones in the suprarenal gland. This leads to disastrous consequences for the health and the performance of the affected person. We assume, that already 95% of our patients are suffering from adrenal fatigue. Please ask our reception for a questionnaire to determine your risk easily and free of cost.

- e)** During the whole treatment, the patient receives the so-called BTPII-infusion, which contains 15g vitamin C, procaine, Mg-sulfate, sodiumcarbonate and vitamin B12. It is important not to use isotonic saline solution, because it holds back water in the kidneys, but to use isotonic ringer's solution. Near the end of treatment, the high-dosage vitamin C infusion is replaced with a pain-relief infusion. The patient must not experience severe pain at any stage, as this would activate the sympathetic nervous system and impair the immune system and healing mechanisms. For minor procedures, Perfalgam® (1 g paracetamol) for 15 minutes is sufficient. For prolonged and major procedures, an 250 mg Novalgin® infusion should be administered for approx. 20 minutes.

f) DAILY USE is a mixture based on BASIC IMMUNE. It consists of a morning sachet (Energy) and an evening sachet (Relax), and is formulated for long-term use. A sufficient supply of vital substances is no longer given in our diet due to the depletion of our soil and increased consumption associated with stress. People in the industrialized western nations must therefore take in the most important vitamins and minerals routinely and on a daily basis artificially. It is important to understand that Daily Use contains a maintenance dose, but that the reservoirs need to be filled up before by Basic Immune.



f) HEN OR EGG

By the consequent implementation of this pre-, peri- and post-operative protocol in the SWISS BIOHEALTH CLINIC, we have observed that ceramic implants healed without complications and gum inflammations withdrew completely for all patients. This leads the official thesis ad absurdum, which states that periodontitis (gum inflammation) is rooted in an insufficient dental hygiene and stigmatizes the patient unfairly. We claim that periodontitis is the “scurvy of the 21. century” and is caused by a lack of minerals. This goes along with pain and touch sensitivity causing patients to neglect oral hygiene. Therefore, dental plaque stands at the end and not in the beginning of this cascade!

3.3 RESTORATION

Within the context of 'THE SWISS BIOHEALTH® CONCEPT', the term 'restoration' refers to a defined and systematic algorithm of treatment sequences that aim to:

- reduce the strain on the immune system as quickly as possible
- ensure the greatest possible safety, above all in terms of preventing infection or intoxication
- administer speedy and standardised treatment, saving time and financial resources. This aspect is often neglected by dentists / oral surgeons insofar as only the primary costs (dentist's fee, materials, dental laboratory) are taken into account. However, the secondary costs are often a great deal higher for patients: travel, accommodation, absence from the workplace, inability to work due to swelling etc.

The four treatment stages:

- 2-4m: Reorganisation of a normal physiology
- Detox
 - 1-2d: Removal of metals, of dead teeth, of RCT, of titanium implants, of cavitations etc.
 - 2-6m: Detox of all systems (DMPS, Chlorella, etc.)
- 2m: Immune modulation (90% of all symptoms are caused by immune reactions to toxins and germs)
- 6-12m: Reduction of pathogens and normalization of the microbiome



3.3.1 RESTORATION SEQUENCE

The graph above shows how dental therapy is incorporated into the 4-phase-concept by Dr. Klinghardt. The effectiveness is obvious: during a few days, a health improvement of 60% can be achieved by biological dental therapy within a course of a two year long overall therapy.

According to the 'ALL-IN-ONE' concept, all steps must be carried out in this sequence, ideally in one session. Should this not be possible, a two to three day treatment sequence has to be aimed at. It is important, that for a period of one to three days after the surgery, no further invasive or detoxifying measures are taken, because it is the so-called catabolic phase.

1st step: gentle and stress-free removal of metals using protective measures in order to relieve the immune system without burdening the body

- amalgam removal using six-fold protection and provision of CEREC ceramic inlays or long-term temporary restorations
- crown/bridge removal with dental dam protection and replacement with long-term temporary restorations
- removal of titanium implant abutments

2nd step: quadrant-wise removal of all root canal-treated teeth and infected teeth, root residues, wisdom teeth, IOs/ NICOs, foreign bodies with subsequent, immediate implantation. The following sequence should ideally be followed during the operation:

- Women: bottom right, top right, bottom left, top left
- Men: bottom left, top left, bottom right, top right



RL-RU-LL-LU

LL-LU-RL-RU

This sequence draws upon the YIN-YANG system and guarantees the speediest and most profound alleviation of strain on the immune system.

3rd step: production of fixed and metal-free long-term temporary restorations that remain in the mouth from a minimum of three to a maximum of 24 months. These temporary restorations are designed to approximate a final crown as close as possible in terms of aesthetics, to protect the teeth and the implants and to restore the bite height. Patients are instructed not to subject the implants to any hard foods for the first six weeks after the procedure until healing is complete.

4th step: after three to four months, an examination will be carried out to check how the implants have healed, to resolve any precarious situations and to introduce further treatments in this temporary phase if necessary. During this phase, the bite is also perfectly adjusted by way of the long-term temporary restoration.

5th step: once the long-term temporary restorations have brought about a stable and healthy state, they are replaced with permanent ceramic crowns.

3.3.2. METAL RESTORATION

Cytotoxic, immunological and carcinogenic effects, as well as influences on metabolism, have been scientifically proven for various metals, such as mercury, gold, platinum, copper, cobalt, aluminium, iron and chromium. Usually, a few days after insertion into the mouth, metal components can be detected everywhere in the body (dissertation submitted by Dr Volz, University of Ulm, 1991: "Proof of the invasion of amalgam in the pulp tissue by means of neutron activation analysis and energy loss spectroscopy").

These metals strain the body due to their toxicity, since they can bind to proteins, enzymes and cell membranes in ionised form (sulfhydryl groups) and block their function. The immunological effects are particularly dangerous, as they can trigger different types of allergies (type IV hypersensitivity), foreign body-induced inflammation (e.g. as evinced by titanium) and autoimmune diseases due to deletion of the MHC code (1.5b). There is also an electrical component, because in the age of mobile communications, WLAN, Wi-Fi, DECT technology, radar, etc., these metals scatter, reflect, modulate, amplify and mobilise electromagnetic radiation unchecked. Particularly in the case of titanium implants, which demonstrate an antenna effect, 3G and 4G networks heat up the surrounding bone by several degrees Celsius. Microwave radiation always results in metals heating up (see metal spoons in the microwave oven).

According to Dr Volker von Baehr (www.imd-berlin.de), the intolerance level of titanium implants now stands at 10 % to 25 % among the German population, and can be demonstrated by the 'titanium stimulation test'. Prof. Vera Stejskal from the Karolinska Institute (www.melisa.org) considers the intolerance ratio to be even higher. As does Dr Bernd Bremer, Senior Physician for Medical Materials Science at the University of Hanover: he estimates the intolerance level to be 50 %, and is currently conducting a study on this topic.



This correlates with the officially accepted mucositis/peri-implantitis ratio of 80 %/50 % (literature review by Prof. Ralf Smeets, Managing Director of Maxillofacial Surgery at the University of Hamburg-Eppendorf). According to the author, peri-implantitis is nothing more than the clinical expression of an intolerance. This has also been confirmed by a paper published in Düsseldorf on the occasion of the 2014 annual meeting of the DGI (German Society of Implantology). The paper prepared by the University of Freiburg successfully demonstrated the presence of titanium particles in the surrounding soft and hard tissue in just under 80 % of peri-implantitis cases.

For this reason, 'THE SWISS BIOHEALTH® CONCEPT' treatment protocol states that all metals should be removed from the oral cavity. It goes without saying that this must be carried out duly observing the appropriate safety measures:

a) Amalgam removal using six-fold protection

Amalgam consists of silver and various metals. It is made up of 50% of mercury, the most toxic, non-radioactive

element on our planet. Amalgam is not a stable homogeneous alloy, but a compound which is considered as a "intermetallic bond" and turns into gas at room temperature. Mercury is stored in the liver, kidneys, brain, large intestine, the CNS, fat tissue and the thyroid gland. The half-life period of mercury in the brain is 16-30 years! The extreme danger of mercury requires special protection measures:

A dental dam, a protective rubber cloth, provides protection against amalgam chips and fragments, which could come loose and collect in the tissue. The newest generation is latex-free and is made out of silicone (ROEKO: Flexidam). This has the benefit, that mercury in gaseous form cannot penetrate the silicone.

- A clean-up suction device provides additional protection against mercury vapour, as the device is positioned above the tooth being treated.
- Careful drilling is to be carried out at a low speed using a carbide cutter to prevent the development of toxic mercury vapours. Bigger chunks should be levered out after drilling, if possible.
- Oxygen is to be administered through a nasal tube: this oxidises mercury and provides additional protection for the lungs and against mercury inhalation.
- A nose guard coated with gold absorbs mercury vapours, because gold and mercury have a high mutual affinity. Breathing masks categorized as FFP3 are good and cost effective alternatively. They do not only protect against 99% of mercury but also against toxic dust, smoke and aerosols that are smaller than 0,6 µm as well as from carcinogenic and radioactive substances plus viruses, bacteria and fungal spores.
- The iQ-Air ambient air exchanger, a type of 'nozzle', is positioned as close as possible to the oral cavity. The device then works similar to a vacuum cleaner, using an extremely high suction force to extract all the air in the area surrounding the patient's head and the staff carrying out the treatment. Following mercury and pathogen filtration, the air is led back into the room.

Depending on the state of the patient's health, the teeth are either treated immediately and conclusively or temporarily with glass ionomer cement fillings, until extraction has been completed.

In the days before the amalgam removal, all foods with harmful effects should be eliminated from the diet. This means: no coffee, alcohol, tobacco, simple sugars, gluten or products made out of cow's milk. Water, healthy fats, all kinds of vegetables and salads, plus a healthy lifestyle with plenty of sleep, exercise and sun have a positive and stimulating effect.

The patient should begin taking the following dietary supplements and medications 14 days before amalgam removal and continue to take them for 14 days thereafter:

- Chlorella Vulgaris pellets: 8-10 pellets 3 x daily (30 minutes before meals, last dose immediately before bedtime)
- Zinc (gluconate/citrate): 20 mg 2 x daily with food (2 x 2 capsules)
- Omega-3 fish oil: 2 capsules with breakfast, 4 capsules before bedtime
- Magnesium citrate: 2 capsules in the morning and in the evening with food

There is to be no change in the diet on the day of amalgam removal. Plenty of fluids should be consumed following treatment. Following the amalgam removal, a professional and personalised amalgam recovery plan should be followed in conjunction with a physician practising environmental medicine or an alternative practitioner.



There continue to be discussions whether the amalgam should be removed as quickly as possible within a single session, or over a series of sessions conducted at long intervals. These discussions are futile and misdirected: proposing to carry out the removal over several sessions clearly implies that the supporters of this method do not feel able to remove the amalgam securely without subjecting the patient to any sort of contamination or stress. In this case, the dentist should not be removing any amalgam

at all, as the mercury contained (over 50 %) is the most toxic non-radioactive element, and can result in extremely serious diseases even in very small doses.

Instead, it is far more important to follow an amalgam removal plan, such as the one described above, which ensures that the patient is not subjected to any mercury contamination. Given that this pre-condition is met, the amalgam fillings should be removed as quickly as possible and in as few sessions as possible.

b) Metal inlays, metal crowns and metal bridges using dental dam protection

All metals are removed using rubber dental dam protection at minimum in order to avoid metal particles from being absorbed by the mucous membranes and the gastrointestinal tract.

In the event of serious illness such as ALS, or upon the request of the patient, maximum protection (see 'Amalgam removal') may also be used for general metal removal.

c) Explantation of titanium implants

Using a special system (Implant Removal Set®, Neobio-tech), it is possible to unscrew the titanium implant from the bone without triggering the usual bone defect in most cases. Depending on the state of health of the patient, a fully ceramic implant can now be fitted directly without having to wait for the bone to heal. This switch from 'titanium to ceramic' prevents bone loss and saves time because the new implant is screwed directly into same bone cavity.

In cases where there is no titanium intolerance and also no electrosensitivity, the titanium implant may remain in the patient for the time being. The structure and the screw superimposed on the implant usually contain a gold alloy, and must therefore always be replaced by a fully ceramic structure (abutment) with a titanium screw to avoid a localised current flow. With the introduction of mobile 5G and subsequent networks, we assume that all titanium implants will need to be removed from patients. The overheating of the bone as a result of the antenna effect and the subsequent destruction of proteins above 42 °C will lead to bone degradation and a generalised loosening of the titanium implants.



3.3.3 IO (ISCHAEMIC OSTEONECROSIS) OR NICO (NEURALGIA-INDUCING CAVITATIONAL OSTEONECROSIS)

a) Wisdom teeth

Why do wisdom teeth play such an important role in western industrialised countries? They are often displaced transversely in the jaw, have insufficient room to erupt and therefore require surgical removal. An error of nature?

No, more likely an evolutionary error! At some stage, mothers in western industrialised countries began to reduce breastfeeding time or abandon it altogether, pumping out breast milk and feeding their babies by bottle. In addition to numerous emotional and psychological advantages, however, breastfeeding is also responsible for ensuring that the jaw develops in a forward direction.

In a sense, it is a type of orthodontic treatment: constant sucking at the mother's breast over a period of several months influences the jaw's growth.

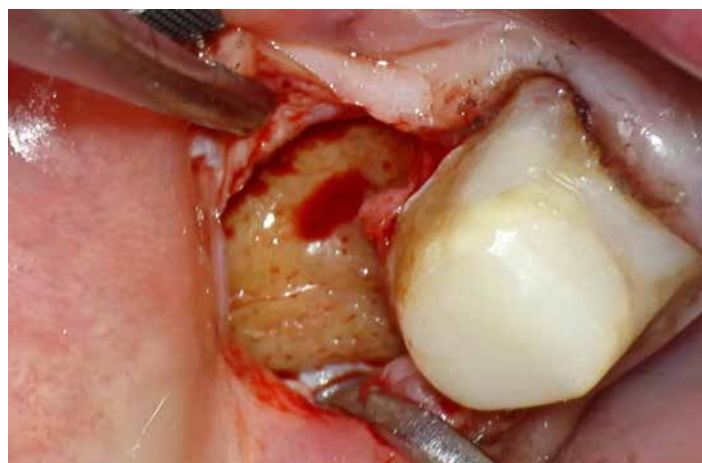
If children were breastfed for one and a half to two years, as is intended by nature and still is norm in numerous indigenous cultures, then the jaw would be large enough to provide sufficient space for the wisdom teeth.

In our society, this is generally no longer feasible, and the wisdom teeth need to be surgically removed at a young age, usually between the ages of 12 to 20 years. This is not ideal, as this is the period during which young people suffer from general mineral deficiency due to a strong growth spurt and unhealthy eating habits. All four wisdom teeth are usually removed at once, focusing the shortest surgery times possible. Often these treatments are done under general anaesthesia (ITN), which has negative ancillary effects on the immune system. Usually, the wound is not fully cleaned and sterilised (e.g. using ozone), and is then consigned to secondary healing by inserting a strip bearing antibiotics and cortisone, blocking the immune system. Antibiotics are almost always given orally, weakening the immune system further. The operation is usually very invasive ('major surgery, major incision') and traumatic, and therefore involves severe swelling. These factors prevent the switch to the parasympathetic mode which would be necessary for effective healing. Under these circumstances, the bone defect is unable to heal, which is why around 90 % of all wisdom tooth operations involve IO or NICO. While the gum tissue and the hard bone underneath (known as 'compacta') do heal, there remains a cavity, which is either completely empty, filled with pure fat or with a mixture of fat and dead trabeculae.

This is also known as 'chronic fatty degenerative inflammation'. The correct radiological term for NICO is "ostelysis of the jaw bone". This is important for communicating with radiologists or insurance institutions. The formation of an IO/ NICO can only be avoided by following the 'BTP Biological Treatment Protocol' described here. Experienced surgeons can detect the IO/ NICO even using an orthopantomogram (panoramic x-ray = 2D), but it can only be reliably diagnosed using a 3D recording, the DVT.



When gum tissue above an IO/NICO is opened, the condition can usually be detected from the outside. The bone shows a yellow discolouration owing to cholesterol (LDL) reserves. The blood will also glisten due to the floating droplets of fat released by opening the bone.



If you look at the histopathology of these fatty degenerated bone necrosis areas, you can see thin trabeculae of bone with lost boney interconnection. The bone marrow containing the fatty conglomerates shows mucoid degenerations with interstitial edema. The amount of fat cells is strikingly increased. This is a chronic, silent infection due to the lack of an acute cellular inflammation reaction through the significantly raised amount of IL-1ra (Interleukin-1-receptor antagonist).

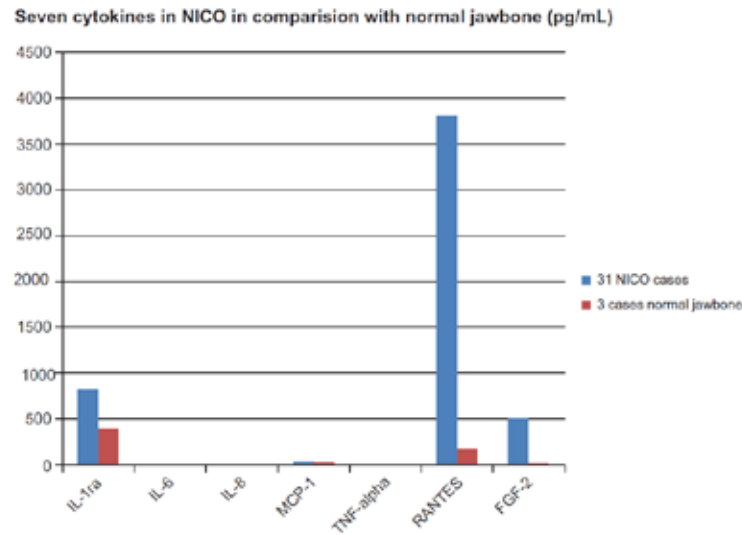
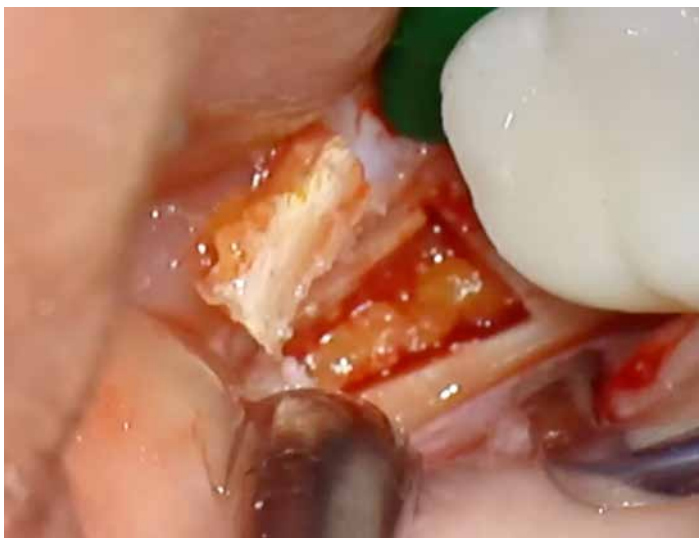


Figure 5 Distribution of seven cytokines in NICO (n = 31) and in normal jawbone (n = 3) (values in pg/mL).
Abbreviations: FGF-2, fibroblast growth factor 2; IL, interleukin; MCP-1, monocyte chemoattractant protein 1; NICO, neuralgia-inducing cavitational osteonecrosis; ra, receptor antagonist; RANTES, regulated upon activation normal T-cell expressed and secreted/chemokine ligand 5; TNF, tumor necrosis factor.
 Source: Lechner J, von Baehr V. Int J Gen Med. 2013 Apr 22;6:277-90. doi: 10.2147/IJGM.S43852. Print 2013

In this case IL-1-ra functions as a masking cap, so that dangerous inflammatory mediators as RANTES and FGF-2 (see below) are not detected and fought by the immune system.



The tissue shows fatty, degenerative and osteolytic components because of insufficient nutritional supply. Extended intertrabecular spaces often contain necrotic bone

fragments, fat-containing micro-bubbles and reservoirs of liquefied fat. These are similar to fat cysts, with an almost complete loss of the adipocyte nucleus. Residual, degenerated bone marrow stands out. One can also see an accumulation of acidic glycosaminoglycan in the bone marrow. Small nerve fibers show in most of the NICO biopsies and are often located close to the degenerated, fat containing tissue. Since they are often the cause of face pains, the term NICO (Neuralgia Inducing Cavitational Osteonecrosis) has been given to name this situation. Next to the IL-1_ra masking, there is another disastrous characteristic of the NICO: Blood vessel supply is reduced similar to a "bone infarction", healing and repair mechanisms and the immune system are impaired.

This means that a NICO can hardly be positively affected by non-invasive or by medication alone. Simultaneously, waste products cannot be taken away, as no lymphatic drainage exists. However the NICO contains nerve-fibers (see above), which can transport toxins from the NICO into the ganglia and CNS (central nervous system) by axonal transport at a very high speed. This can be responsible for nerve pain (neuralgia) or even nerve failure!

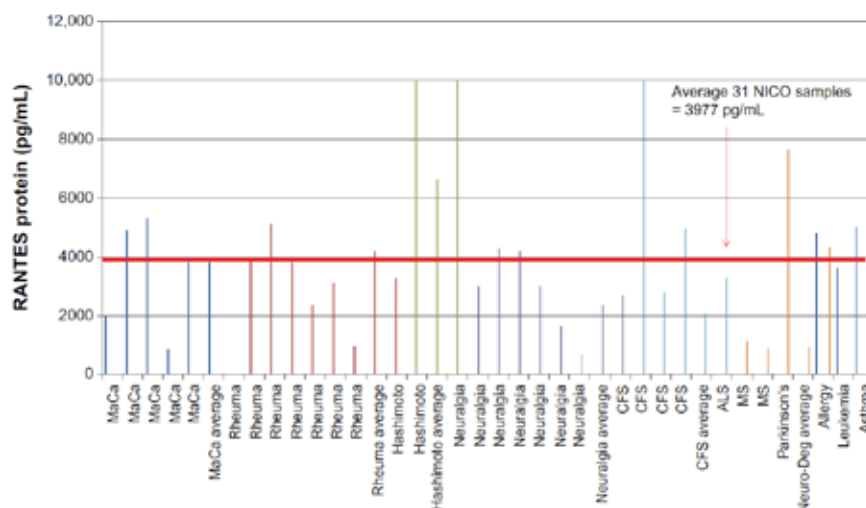


Figure 6 RANTES in NICO tissue with cohort assigned to diseases.
Abbreviations: ALS, amyotrophic lateral sclerosis; CFS, chronic fatigue syndrome; MaCa, breast cancer; MS, multiple sclerosis; Neuro-Deg, neurodegenerative disease; NICO, neuralgia-inducing cavitational osteonecrosis; RANTES, regulated upon activation, normal T-cell expressed, and secreted/chemokine ligand 5; Rheuma, rheumatoid arthritis.
 Source: Lechner J, von Baehr V. Int J Gen Med. 2013 Apr 22;6:277-90. doi: 10.2147/IJGM.S43852. Print 2013

The significantly increased inflammatory mediators in the NICO are RANTES (regulated on activation, normal T-cell expressed and secreted) and FGF-2 (fibroblast growth factor 2). Both of these factors are also always found in the tissue of serious illnesses like ALS, MS, rheumatoid arthritis and breast cancer. They are also found in extremely high amounts in the NICOs of these patients. Thus, NICOs are a major reason for autoimmune disease by the production of RANTES/FGF-2.

RANTES belongs to the family of chemotactical cytokines (chemokines). Chemotactic procedures triggered by RANTES lead T-cells, dendritic cells, eosinophils, NK cells, mast cells and basophil cells to the inflamed and infected area, resulting in the development of MS and Parkinson in the CNS. By the mast cells the risk for allergies, hair loss and thyroid gland diseases is raised. Affection of neurons results in diseases of the CNS. Human melanoma cells also excrete RANTES and stimulate the growth of tumor cells. In the Hodgkin lymphoma, malign Starnberg-Reed cells produce RANTES, causing the chemotactic migration of mast cells into the tumor cell.

Currently there does not exist a non-invasive or partly invasive therapy that is able to heal a NICO (HBOT, neural therapy, injection of ozone etc.) Only the minimally invasive, atraumatic but radical surgical cleaning of the NICO is able to achieve a full healing of the area and to reduce or even eliminate the related symptoms. Especially NICO symptoms, among others neuralgic complaints, are associated with the meridian, running through this area, the heart-/circulation meridian, triple warmer and small intestine. This can be because of chronic fatigue CFS and lack of energy (Burn out), all sorts of cardiovascular complaints, suprarenal gland deficiency, weight gain, allergies, skin diseases, problems with the small intestine, autoimmune diseases and especially Lyme disease.

Particularly in Lyme disease patients great amounts of Borellia, Babesia and Bartonella are found in NICOs. Here, they meet a perfect environment to replicate and transmit their toxins by nerve fibers throughout the organism. If particularly Bartonella are elevated (Patient usually know this), the risk for infections and wound healing disorders is increased. These patients need to be protected additionally by a daily antibiotic infusion over the course of one week after the NICO surgery.

NICO tissue does not only contain viruses, fungi, bacteria, parasites, FGF-2, RANTES and fat cysts, but also large amounts of mercury, arsenic, lead or aluminium and recently more and more Glyphosate, a pesticide.

Treatment now consists in removing all soft material of this 'chronic fatty degenerative inflammation' until only hard bone substance is present, the yellow colouring is completely gone and there are no more fat droplets floating on the blood. The significance of the therapy is further evidenced by having the patient leave his eyes open, observing the size of his pupils: chronic inflammation associated with a 'silent inflammation' means that the patient is in the sympathetic state permanently, showing dilated pupils. Once the IO/NICO has been completely eliminated, the pupils will become smaller as the patient begins to relax. The patient has switched to the parasympathetic nervous state. Ozone is then used as a sterilising agent, and the defect is filled with A-PRF membranes (3.3.4 f) and sealed with absorbable sutures (Atramat®), preventing contamination by saliva.

Upper jaw IO/NICO: Alveolar ridge incision without vertical relief, wedge shaped incision below as a tuber plastic to reduce the thickness of the connective tissue of the tuber. Complete removal of the tuberosity and cleaning of the area using manual instruments and Piezo technology, ozone, possibly A-PRF and absorbable sutures.

Lower jaw IO/NICO: Alveolar ridge incision at an angle of approx. 30° on the vestibular aspect in order to protect the lingual nerve similar to the method used for wisdom tooth removal. No vestibular relief, fenestration with Piezo saw, clearing of the IO/NICO solely with Piezo instruments to protect the nerve ('Piezo technology'). Filling and covering of the defect with A-PRF membranes. A deep apical mattress suture (ideally made of absorbable material) is placed over the covering membrane in order to offset the drag and fix the covering membrane securely. The actual wound is closed by a continuous suture or individual button sutures.

The use of Piezo instruments in IO/NICO therapy was introduced by Dr Volz and revolutionised this type of treatment, as it allows the extremely quick, safe, gentle and, above all, complete removal of the necrotic material. Piezo is an ultrasound-based method, in which the instrument vibrates/oscillates at great speed and can not damage a nerve or vessel. The Piezo method was hailed as a breakthrough in brain and spinal surgery many years ago.

b) Empty jaw sections

Of course, IOs/NICOs can, also occur in other dental zones besides the wisdom tooth area. Possible reasons are: foreign bodies, such as root fillings, amalgam from fillings, root residues, etc. A dry socket can also result in the formation of a NICO. The formation of a dry socket is countered by priming the bone with a round bur, using ozone (the strong electromagnetic field at the glass tip activates bleeding) and protecting the socket from saliva. Saliva has a very strong haemostatic effect, which at this stage is extremely undesirable. The socket would fill up with saliva completely, keeping out blood. The most reliable way to seal the socket is achieved by completely filling it with A-PRF membranes.

c) Ankylotic root canal-treated teeth

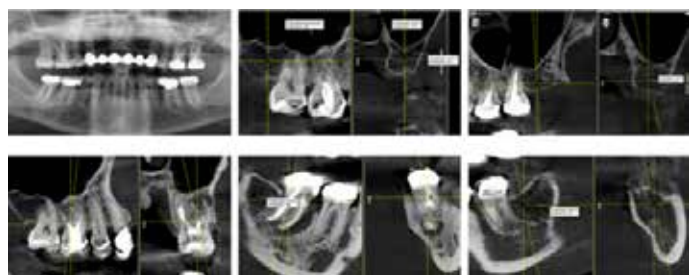
IOs/NICOs are frequently found in the sockets of ankylotically impacted teeth as the 'ligament insulation layer' is no longer present, and toxins can permeate the bone unimpeded. It is interesting to note that the better and the more complex the root canal treatment is, the higher the risk of ankylosis and therefore an IO/NICO! The poorer the quality of a root canal treatment, the more likely it is that a cyst will be found. In contrast to the IO/NICO, this indicates a reasonably intact immune system, as the cyst sac seals off emergent bacteria from the rest of the body and forms a kind of 'prison wall'.

Therefore, a 'drilling test' should always be carried out through the socket wall, through the socket tip and into the septum, even if immediate implantation is not planned. If the tissue underneath is soft and floating fat-droplets emerge on the escaping blood, then a IO/NICO is sure to be present and needs to be cleaned. It is often necessary to remove the entire alveolar wall. Often the fatty degenerative lacunae spread deep below the adjacent teeth and only the compacta of the jaw remains after cleaning or IO/ NICO treatment.

The fact that the patient is in a relaxed state is clearly evident at the end of the treatment; it is not uncommon for patients to fall asleep during treatment. In around 50 % of NICO treatments, patients feel markedly better even as they are getting up from the chair. Setting in no later than two to three days after operation, they experience relief, feelings of freedom, improvements on the associated meridians, etc.

THERAPY EXAMPLE:

This patient had very intense NICO's in the wisdom tooth area and also around the ankylosed endodontic treated teeth.



The following picture shows a patient before the treatment and six months later after insertion of ceramic crowns on the ceramic implants and teeth with previously metal based crowns.



You can observe the relief of the patient, or rather the patient's system, in her face and eyes. She has expressed her subjective feelings in the following statement:

I first visited SWISS BIOHEALTH in Oct/Nov of 2016. At the time, I had been under medical treatment for Lyme disease and various other bacterial, viral and fungal related illnesses. I had been experiencing chronic illness and pain for about 2 years. I was unable to walk without pain in my joints and muscles. I also experienced trouble breathing, had sore throat most of the time and laryngitis when I would encounter any type of toxic or chemical smell. (cigarette-smoke, perfume, cleaning products). I also did not have full use of my right arm due to a frozen shoulder and the inability to move my right thumb. I felt fatigued and stressed the majority of the time. The treatments I was receiving in the U.S. were slowly helping to remove toxins and rebuild my body, but it was a slow process. Immediately after having all the metal removed from my mouth and all cavitations cleaned out, I was able to move my shoulder and slowly started to gain some use of my thumb. When I returned home after surgery at SWISS BIOHEALTH, I felt more energy than I had in almost 2 years. My muscles no longer ached and the pain in my joints started to subside. I started to be able to hike with my dogs again and run on the beach with my horses! My brain and ability to think became clearer and my level of anxiety decreased significantly. I have also found that when I do come in contact with toxins- (smoke, mold, chemicals), my body still reacts but the symptoms and pain are not as severe and my body is able to clear the toxins faster and resolve the pain. Catherine Stewart Point Roberts, WA, USA

3.3.4. ROOT CANAL TREATMENT

Root canal-treated teeth are dead teeth. Even the best micro endodontics can never achieve a cleaning completely free of bacteria and a bacteria-proof, and sealed root canal filling. Accessory lateral channels and the endo-perio connection via the dentinal tubules are preserved. The dead tooth, once an organ with its own nerve and blood supply, remains as a dead pillar in the oral cavity. It is inhabited by various and, to some extent, unknown species of anaerobic, pathogenic bacteria. These decompose the remaining organic tissue and secrete harmful metabolites (toxins). The following problem arises: the dentinal tubules have a diameter of 1 - 5 μm , meaning that bacteria measuring 0.6 - 1 μm can get in, but cannot be ingested by macrophages measuring 5 - 20 μm . An apt comparison is that of a cat (macrophage), which sits outside a mouse hole (dentinal tubule) and cannot get to the mouse (bacteria) to devour it.

These pathogenic bacteria produce highly toxic and potentially carcinogenic hydrogen sulphide compounds (thioether/mercaptans) from the amino acids cysteine and methionine as by-products of anaerobic metabolism. As a result of the irreversible inhibition of the active centre of many vital bodily enzymes, these toxins can cause a number of systemic and organic diseases. The inhibition of important enzymes in the respiratory chain of mitochondria has been proven in vitro.

Every time a patient chews, the bacteria and, most importantly, their toxins, are released into the lymphatic system of the surrounding tissue. From here, they travel into the bloodstream (focal infection) and throughout the entire body.

A study by Siqueira et al. found that micro-organisms were detectable in all endodontically treated teeth with apical inflammation, suggesting a chronic infection. Richardson et al. reported 75 different strains of bacteria to be found in root canal-treated teeth with apical osteitis. Those most frequently found in and around the dead teeth were *Enterococcus faecalis*, *Capnocytophaga ochracea*, *Fusobacterium nucleatum*, *Leptotrichia buccalis*, *Gemella morbillorum* and *Porphyromonas gingivalis*. Four of the species cited attack the heart, three the nervous system, two the kidneys and the brain, and one affects the maxillary sinus.

If an inflammation of the root apex is detected on the x-ray, the risk of failure of a root canal treatment increases significantly due to chronic infection. Since the standard deployment of three-dimensional x-ray imaging (DVT), it has been shown that almost no root canal-treated tooth is free from apical inflammation.



Vital, healthy pulp and an intact immune system, play a pivotal role in resisting these bacteria. Often, the chronic infection resulting from bacterial colonies develops into a chronic inflammation of the surrounding bone: this permanently activates the immune system.

The macrophages activated during the non-specific immune response release inflammatory mediators (TNF- α , IL-1 β , growth factors, PGE2 prostaglandins and leukotrienes), which circulate in the bloodstream. These inflammatory mediators encourage the development of chronic inflammation and auto-immune diseases or worsen pre-existing illnesses. In addition, T-lymphocytes are stimulated. They produce TNF- α , which is also suspected to promote chronic inflammations and cancer. TNF- α has been shown to increase the risk of post-menopausal breast cancer. Dr Thomas Rau, director of the Paracelsus clinic in St Gallen, successfully demonstrated a clear link between breast cancer and root canal-treated teeth. In over 96 % of breast cancer patients, he found one or more root canal-treated teeth on the stomach meridian, which traverses the breast, compared to only 35 % in healthy patients.

The perfect defence of a healthy body against this inflammation, manifests itself in an abscess, leading to a swollen cheek.

Nowadays, we are often only familiar with this from textbooks, as none of our patients have experienced this for around 20 years.

The immunological performance of people in western industrialised nations has massively decreased. In the last 50 years, the proportion of immunoglobulin A, used to measure the strength of the immune system, has decreased by more than 30 % in these countries.

A cyst with or without fistula indicates a reasonably intact immune system, but this is increasingly rare. In the region of a root canal-treated tooth, there is usually only a non-demarcated, diffuse IO/NICO, a sign that the immune system has completely caved in! Next to the silent inflammation and autoimmune reaction that goes along all root canal treated teeth, there are very often allergic reactions to the various, highly allergenic substances from the root canal filling: gutta-percha, silver, Peru balsam, paraformaldehyde and colophony.

When removing root canal-treated teeth, both pre and post-immunological treatment should be carried out (see 3.2 above) to enable the body to heal the wound, generate new, healthy bone and prevent infection.

As a rule, extraction is always carried out as gently as possible – gums and bones must remain wholly undamaged after the tooth has been removed. If possible, the attached gingiva (growing gums) should not be removed. The ligament, the elastic fiber system that holds the root, must be removed completely. Otherwise, the brain will not realize, that the tooth has been removed and the distribution of bone growing factors will last until the ligament has been resorbed, taking days or weeks.

a) Extraction: The gingiva is carefully loosened from the tooth using a surgical scalpel blade No. 12. Using forceps, gentle and isostatic leverage force is exercised on the tooth until it is loosened. There are two ways of making the extraction easier:

- If the tooth to be extracted is shortened several days/weeks before the date of extraction, and is brought out of the occlusion / state of stress, it will grow upwards in the direction of the occlusal plane, making subsequent removal a great deal easier. This is seen repeatedly in the extraction of broken teeth or root residues, which are always very easy to remove.
- Another option is to start the extraction, applying force on the tooth. It is then left to rest for a while (15 to 30 minutes), performing other scheduled treatments in the meantime. As a result of the bleeding into the periodontal space, strong pressure is naturally exerted onto the root in the direction of extraction. The tooth can then be removed easier and with a lesser force.

b) Root infracture: If the tooth cannot be removed by ordinary extraction (see above), an osteotomy should be carried out under no circumstances. Despite this is still being common practice. To remove good and healthy bone using the Lindemann bur in order to loosen a dead root is tantamount to physical injury. It indicates inadequate dentistry skills and an insufficient understanding of biology. A logical method that is gentle on the tissue is to mill a Mercedes star or Swiss cross into the root. The root fragments are then removed with a small lever bit by bit. This is easier to perform by making slits along the root canal all the way to the root tip or even slightly beyond (cave: roots close to the maxillary sinus or nerve). The method is usually very simple because the root canal is either hollow or filled with a soft root-filling material.

c) Densotomy: If the root infracture (see above) is unsuccessful, the root is then 'pulverised' using a long, round bur and bored away completely. This is easier than expected, because the drill rotates smoothly and evenly on the root dentine, but immediately becomes unstable and has a 'knocking' effect when it comes into contact with the bone. This allows an accurate differentiation between bone and root. For this procedure, it is helpful to work with a strong loupe and a bright light source, as well as to attach the fine tip on the Surgitip® aspirator®. Usually, the root tip can be removed at some point with a fine instrument, e.g. the 'papilla lifter'. Compared to a lever, it is extremely thin and can be slid between bone and root without damaging the bone.

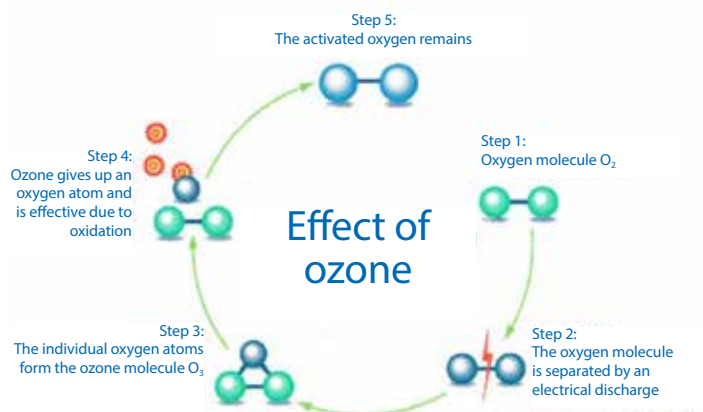
d) Separate removal of a cyst or foreign body in the area of the root tip: These are never removed by folding down the gingiva from the socket margin, as this destroys the blood supply in the area of the socket edge. It would result in bone reduction of 0.3 mm to 1.0 mm and subsequently an intolerable deterioration of aesthetics. Instead, a vertical incision is performed in the free gingiva near the area undergoing surgery. The cyst or foreign body near the root tip (retrograde root filling with amalgam or cement, overly filled root, broken canal instrument, etc.) can now be removed. Care is taken to achieve an undamaged periosteum (bone skin) over the defective area. Horizontal incisions must never be made because the blood vessels and the meridians run vertically and their function would be impaired.

The cyst or foreign body can now be removed by sight. It must be ensured that a bone discoloured by amalgam or other metallic foreign bodies is completely removed and that any metal tattoos sited in the soft tissue are excised. For seriously ill patients, such as those with ALS, the complete removal of foreign bodies can mean the difference between life and death. Because we never know the state of health of a patient in 10 or 20 years, we must, by way of precaution, ensure right now that deposits are completely removed. Once the defect has been filled with A-PRF membranes and covered, the incision is closed with very fine, continuous, saliva-proof sutures (better tension distribution compared to individual button sutures and thus less scarring).

In all cases, the extraction socket is optimally cleaned, curetted and monitored for IOs/NICOs (perform test drill! see 3.3.3 c above), sterilised using ozone and filled with procaine. It is ensured that complete filling is carried out with the blood clot.

Procaine is also injected into the fold by way of neural therapy. If the socket of the extracted tooth is not to be immediately implanted (see 3.3.5 a) – SCC below) or if there are still cavities between the implant and the socket following implantation, these are compensated using A-PRF membranes made from growth factors (A-PRF, see 3.3.4 f below).

In the instance of poor blood circulation (dry socket) or an opening in the maxillary sinus (Oroantral Communication = OAC) without immediate implantation, the socket proximal to the filling should be closed with saliva-proof, air-tight sutures. The socket is closed using a Cytoplast/TefGen membrane, in addition to being filled with A-PRF membranes. In exceptional cases, the gingiva must be folded down approx. 5 mm. The membrane is trimmed and approx. 3 mm are pushed under the gingiva, which is closed near to papilla with individual button sutures. The rough surface of the membrane is thereby positioned adjacent to the oral cavity, as this surface of the non-expanded Teflon membrane promotes the growth of soft tissue. The sutures are removed after approximately two weeks and the membrane is removed after approximately four to six weeks. These can easily be removed with a probe without administering anaesthesia.



e) Ozone treatment: There are different ozone devices on the market. We prefer the very powerful OZONE DTA devices distributed by www.swissdentalsolutions.com. The strength is set to about 7 to 10 air surrounding the socket is aspirated at the same time as the ozone should not be inhaled (exception: treatment of bronchitis), and since it can only take effect in the presence of atmospheric oxygen. Atmospheric oxygen is shot into oxygen radicals at the probe tip by a strong electromagnetic field. This atomic oxygen O_1 has an extreme bactericidal, virucidal and fungicidal effect. Because the oxygen radicals are very reactive, they combine with oxygen to form ozone O_3 , which also has a bacteriostatic effect. The concentration at the tip of the probe is 10 to 100 $\mu g/ml$. However, ozone is not stable and will break down into active oxygen and oxygen radicals. The sterilising effect penetrates the bone to a depth of up to 2.5 cm and is completely harmless to human cells, since neither O_1 , nor oxygen or ozone can harm the human respiratory chain. In the respiratory chains of bacteria, viruses and fungi, however, the presence of these three forms of oxygen results in a metabolic breakdown and subsequently the death of these pathogens.

Thus, this is a highly effective local sterilisation tool available for use in dentistry, free from side effects. Herpes or oral aphthae on the palate, mucous membranes or lips can also be treated effectively with the surface probe, shortening the healing process from about a week to a few hours. Another positive secondary effect is the short-term increase in blood flow due to the very strong electromagnetic field.

f) PRGF, A-PRF, I-PRF: These are plasma components extracted from the patient's blood, which are rich in growth factors and fibrin.

- **PRGF = Plasma Rich in Growth Factors:** The platelets (thrombocytes) are not only coagulation stimulators, but also contain the largest amount of human growth factors. They ensure that the tissue regenerates itself after an injury or after an operation. These growth stimulators can be used specifically. They can be separated from the platelets or activated with the thrombocytes separated from the rest of the blood, brought to those locations where targeted growth and cell activation are to be stimulated.

The highly effective and side-effect-free PRGF therapy was developed in 1999 under the name Endoret® (Endogenous Regenerative Technology) by the Spanish research group led by Dr Eduardo Anitua. It is based on the activation of the patient's own blood platelets with the aim of stimulating tissue and accelerating its regeneration. This results in the shortening of the rehabilitation or convalescence period after fractures, muscle and tendon injuries and surgical procedures. Overall, the wound healing period is shortened by the concentrated action of growth factors, and the risk of complications is significantly reduced. However, this is an open system, in which calcium sulfate has to be added to produce membranes.

A-PRF = Advanced Platelet Rich Fibrin: Therapy using leukocytes and platelet-rich fibrin to promote wound and bone healing and anabolic forces. In addition, the function of the leukocytes supports the immune response, and the slow release properties of the A-PRF have the advantage of allowing a constant release of growth factors (TGFβ1, PDGF-AB, VEGF) and matrix proteins (fibronectin, vitronectin and thrombospondin 1) over seven days. These growth stimulators can be used very specifically, without need of activation (closed system) and can be applied at locations where growth and cell activation is to be stimulated in a targeted manner. These growth factors stimulate fibroblasts in the tissue, which, in turn, stimulate the formation of collagen and hyaluronic acid, softening the tissue. This takes effect, wherever fibroblasts usually build tissue, such as in cartilage, bone, connective tissue, vessels and in subcutaneous tissue. Here again, what is involved is autologous cell extract therapy. This highly effective and side-effect-free PRF therapy was introduced to the market in 2009 by Prof. Joseph Choukron and is patented and approved across the EU. Well over 100 scientific publications have confirmed the effectiveness and biological safety of this therapy.



- **I-PRF = Injectable Platelet-Rich Fibrin:** The injectable version of PRF, i-PRF, can be used for muscle, tendon and joint disorders, for the treatment of persistent tendon base pain (tennis elbow, achillodynia), for the treatment of injuries (muscle and tendon tears), for cosmetic and regenerative treatments of the skin and the corrective filling of scars and wrinkles, as well as for the treatment of skin ulcers.

In 'THE SWISS BIOHEALTH® CONCEPT', we prefer A-PRF, as its leukocyte content preserves the 'good inflammation' responsible for tissue regeneration. A-PRF also contains 1.2 % stem cells due to the slow and gentle centrifugation process. It is much quicker and easier to use, and there is no limit to the number of membranes that can be produced without effort.

3.3.5. CERAMIC IMPLANTS MADE FROM HIGH-TECH CERAMIC ZIRCONIA



Since Dr. Volz introduced ceramic implants made from the high-performance material zirconia, biological dentistry has been revolutionised: for the first time, patients can be offered a biological solution of the growing problem and the increasing number of root canal-treated teeth. Zirconia is 100 % metal-free, ivory in colour, harder than steel and can therefore only be processed using diamonds. Zirconia has no free electrons on its surface, meaning that it is absolutely neutral, cannot form bonds and traps less plaque than natural teeth do. The material can be etched with hydrofluoric acid and has a melting point of over 2,400 °C.

Apart from its extremely complex manufacturing process, zirconia is the perfect implant material. It has now been recognised by the world market leader for titanium implants STRAUMANN®, which also introduced a zirconia implant to the market in 2014. The prognosis of a zirconia implant is significantly better than that of a natural tooth.

The implant's inert surface allows it to have a lower tendency to develop a gum infection than a natural tooth has (Volz, Sidharta, Haase, University of Ulm, 2006), cannot be attacked by bacterial decay and has no nerves that could die off and turn the tooth into an immunological problem (see 3.3.4 above).

Compared with titanium implants zirconia implants come off much better, too: It is true that titanium implants have a slightly higher short-term healing rate, since titanium is able to assimilate reliably in poor-quality bone in the manner of a chronic inflammation. Zirconia, on the other hand, only assimilates in healthy bone.

There is no risk of peri-implantitis with zirconia. This problem affects about 50 % of titanium implants after about five years. During this period, around 15 % of titanium implants will fail and will therefore need to be removed. In the long run, zirconia implants thus show a significantly better prognosis than titanium implants do, quite apart from the aesthetic advantages they offer over the grey-black color of titanium and its immunological risks.

With more than 15 years of experience and having personally placed around 18.000 zirconia implants (as of January 2018), Dr Volz has by far the most comprehensive experience in this field and has developed several implant systems that take into account the increasing experience with this material. This experience has led to an increased understanding of the disadvantages and advantages of zirconia ('Thinking in Ceramic') and subsequently to the development of derived forms and therapy plans that eliminate or reduce the disadvantages and maximize the advantages. This knowledge has been assimilated into the current designs and types of zirconia implants offered by SDS Swiss Dental Solutions AG (www.swissdentalsolutions.com) and into the 'SCC Short Cut Concept' offered by Dr Volz.

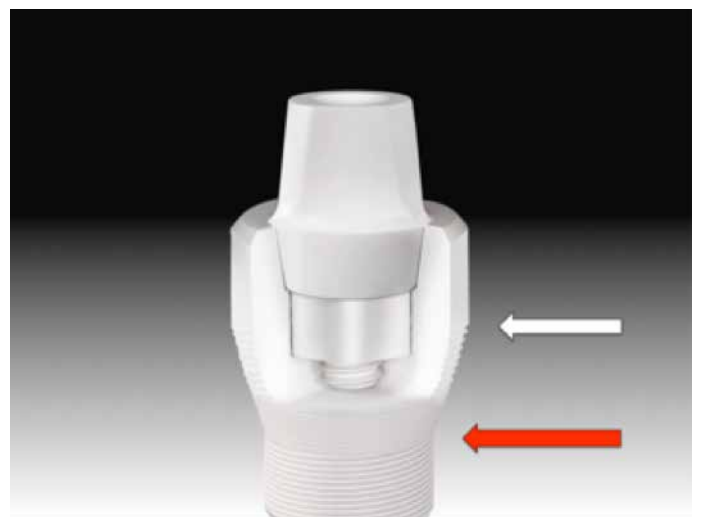
The essential and most important advantages of zirconia over titanium are:

- Zirconia is immunologically neutral, metal-free, has no free electrons, and its ivory color delivers excellent results in terms of aesthetics.
- Zirconia shows no risk of periimplantitis, and therefore promises a significantly higher success rate than titanium does in the long run.

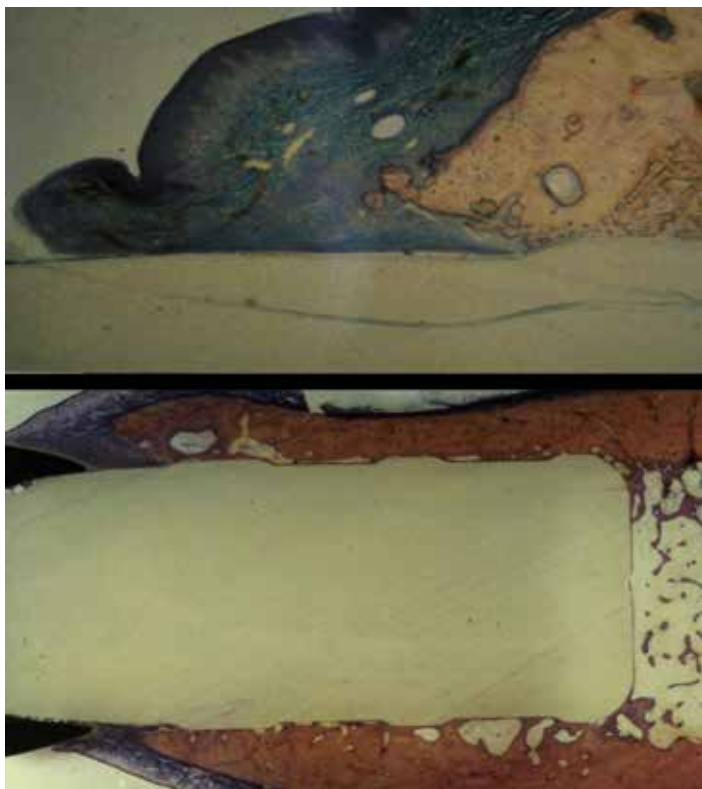


The first 8 prototypes inserted by Dr Volz in the year 2000 already showed the outstanding aesthetic properties.

- Soft tissue affinity: unlike titanium, soft tissue (gingiva) grows onto the zirconia implant as well as bone does. This was demonstrated 20 years ago by Dr Hans Rudelt (Hamburg-Eppendorf University in cooperation with the University of Tokyo) by studying the histology of human specimens after a 20-year period. The research group Kniha Gahlert from Munich and Prof. Josep Oliva Damés from Barcelona have also proven this beyond any doubt. This results in the attached gingiva being supported, an ingress of bacteria between implant and tissue prevented, and for the first time, bone loss to be compensated, being replaced not only by transplant bone, but also by ceramic. So far, defects have invariably had to be rebuilt using new bone, since the soft tissue and therefore the aesthetics follow the bone. However, because soft tissue also grows onto zirconia and follows this material, aesthetics can be restored without bone grafting in many cases. Any titanium implant must be surrounded by at least 1 mm of bone. Zirconia implants provide a fluid and variable transition, because both materials (bone and gingiva) grow onto the ceramic. Volz postulates: The ceramic implant is sited where the ceramic is in contact with the bone. The ceramic abutment is sited where the ceramic is in contact with the gingiva. Titanium implantology aims to implement this knowledge in part by working on titanium implants with zirconia abutments. It is recommended that these should never be removed because the bond between the zirconia and the gingiva would then be destroyed ('one abutment, one time').
- Even two-piece SDS zirconia implants surpass the stability of titanium implants of the same diameter: according to the ISO 14801 duty cycle titanium implants "survive" forces up to 300N. Two-piece implants exceed 450 N and can withstand forces around 600N (mid 2018). The increase of stability became possible by improving the ceramic structure and by its intelligent shape. The connection is placed in the upper, wider part of the implant (so called tulip) and therefore doesn't weaken the thread section since this is already made of severe zirconia. There is furthermore an increase of stability due to the micro thread of the weight-bearing part providing the 3,8mm implant with a core diameter of 3,72mm. otherwise only seen on 4,5 mm diameter implants.
- The lack of ductility of the zirconia ceramic provides another key benefit: the implant remains completely rigid in the jaw bone without moving, unlike titanium, which is a highly ductile material. Therefore, the thin tapering bone around the implant is not reabsorbed. In many cases, bone augmentation can be avoided or implant procedures can be performed in narrower bones than is possible with titanium.



There are over 50 scientific publications on PubMed that attest to the successful use of zirconia implants. The study by Apratim et al. (J Int Soc Prev Community Dent.. 2015 May-June; 5(3):147-56.) from 2015 is a good summary, and states that: "The literature research showed the benefits of zirconia and makes it an IDEAL implant in respect of biocompatibility, osseointegration, favourable soft tissue behaviour and aesthetics in terms of appearance and colour".



Zirconia implants after 25 years of being worn by patients: both bone and gums have grown back and are firmly attached. (Dr Dr Rudelt, Hamburg).

a) Immediate implantation according to the 'SCC Short Cut Concept' by Dr Volz

Dentists consider it normal to extract their patients' teeth leaving these areas to 'heal'. This means nothing other than that the papilla, the gums and the surrounding bone collapse and therefore the aesthetic appearance is irrevocably and significantly damaged. It is astonishing that patients still allow this to be done and that so far dentists have not been held to account on this point, as patients have not been fully informed of the irreversible disadvantages. This overlooks the principle of 'physical integrity'. Patients suffer massive losses in terms of aesthetics and bone volume and often need a subsequent bone augmentation procedure. After a conventional extraction, the papilla, the gingiva and the bone inevitably collapse and result in the patient facing a stalemate situation.

These irreversible disadvantages can only be prevented by way of an immediate implantation procedure, zirconia implant material coming off significantly better than titanium: it is not only neutral and bio-compatible and thus less prone to infection, but the upper region, the so-called 'tulip' which exits the gums, can be made more voluminous, as the surrounding gingiva grows there, seals the cavity and is again supported by growth on the ceramic implant, preserving its volume. The initial findings from a study launched in autumn 2015 on 112 immediate implant patients (Dr Ulrich Volz, cand. med. dent. Leon Neuhöffer, Prof. Ralf Smeets, Hamburg-Eppendorf University) have shown that gingiva is gained as a result of the immediate implant, and aesthetics are enhanced. The implants used are single pieces and in nearly all cases were fitted with long-term temporary restorations (material: Luxatemp®) immediately, and were firmly cemented (Durelon™).



It is also important that the immediate implant protocol for ceramic implants that has been developed and trialled by Dr Volz under the name 'SCC Short Cut Concept by Dr Volz' is meticulously complied with (http://bit.ly/SDS_SCC-CONCEPT_EN). This describes the step-by-step protocol as well as immunological pre and post-treatment. The creation of long-term temporary restorations and the subsequent provision of ceramic implants is described in the prosthetics handbook: (<http://bit.ly/SDS-PROSTHODONTICS-HAND-BOOK>). The benefits accruing to the patient are obvious: A reduction in the number of dental appointments, time savings (approx. 7-12 months) and reduced costs (approx. 30 %-50 % lower treatment costs as well as significantly reduced secondary costs such as travel, accommodation, loss of work time, loss of social engagement capability, etc.) can be achieved. Furthermore, this concept typically involves no swelling and no pain and provides an immediate fixed and aesthetic restoration so that unrestricted social engagement can be resumed after just a few days. Subsequent bone augmentation will not be necessary, and the immediate implant brings about an increase in the bone's metabolism and an activation of the meridians. The socket heals faster and better with immediate implant placement than it would without an implant, and the implant assimilates faster into the extraction socket because all of the body's programmes have been switched to 'healing and bone formation' mode as a result of the extraction. Therefore, immediate implantation according to the SCC protocol is regarded as the best and most biological "socket preservation".

b) Late implantation

Late implantation differs from immediate implant placement in that the bone has already 'healed'. Here, the focus is now set on generating a healthy and wide attached gingiva during implantation, i.e. implantation is only conducted 'flaplessly' without any folding back if the attached gingiva is very wide. Otherwise, a so-called wave cut is performed, which undulates based on the location of the implant tulip within the mouth. The attached gingiva thus obtained is transposed to the vestibular aspect and is supported by the high tulip of the SDS implant, so that a wide margin of attached gingiva is created after healing. The drilling procedure for SDS implants in conjunction with the Dynamic Thread® developed by Dr Volz is first to ensure, that the same primary stability (max. 35 Ncm insertion torque) exists in all classes of bones. This is extremely important for ceramic implants because one of the disadvantages of ceramics is that they are unable to dissipate the heat generated by the insertion and turning process. In type I hard bone, there is a risk of the bone overheating and denaturing. This is especially important in the area of the compacta, because it has poor blood supply, and can become necrotic very quickly, being resorbed when compressed. The optimal insertion torque would therefore be 0Ncm, which we can mostly achieve by immediate implantation into the alveolus, not seeing any bone loss.



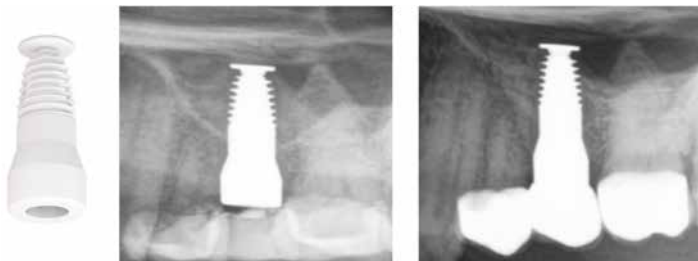
The drilling protocol involves this bone being primed in an overextended way, so that cavities form between the implant core and the bone. On one hand, this reduces rubbing/friction and heat generation, on the other, it creates space for blood and growth factors (bioactive containers, stem cell niches). This initiates callus formation, and bone is formed a great deal faster (10 μm to 50 μm per day) and of a much better quality, i.e. fully vascularised lamellar bone. If the implant creates pressure on the bone (regardless of the implant material), this will cause the bone to switch to the poorly perfused, slow (1 μm to 10 μm per day) appositional growth mode. In type III and type IV soft bone, the drilling protocol always achieves an insertion torque of over 35 Ncm as well, so that these implants, too, can usually be treated with long-term temporary restorations immediately, thus hugely benefiting the patient. However, when drilling into soft bone, any flotation of fatty droplets on the blood must be heeded. This would indicate the presence of an IO/NICO which would have to be fully evacuated during the course of the implant procedure (see 3.3.3.b above) and then sealed with the implant as if by a cork.

c) Bone augmentation

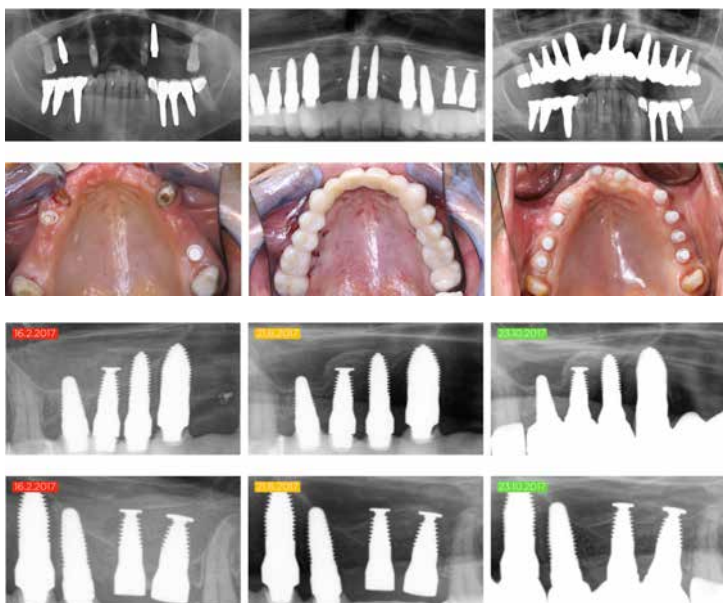
Bone augmentation should, as a rule, be as atraumatic, minimally invasive and gentle to tissue as possible to prevent a loss of circulation and a diminution of aesthetics. Even though immediate implantation according to the SCC protocol can almost always avoid bone augmentation procedures, such augmentation is often necessary in patients who have previously undergone an extraction *alio loco*:

- Widening of the alveolar ridge: the 'Angle Modulation Technique' developed by Dr Erni Fuchs' constitutes bone spread, in which the gingiva is not folded, but instead the bone is cut vertically and sagittally using the Piezo method. With this technique, gentle stretching and spreading results in a greenstick fracture, causing dispersal of growth factors and initiating the formation of a callus. The cavity between the implants must bleed and should not be filled with bone replacement material, as this would disrupt the extremely rapid callus formation in the 'bioactive container'. The cavity can/should, however, be filled with A-PRF membranes.
- Internal sinus lift: here, drilling is only carried out until just below the cortical maxillary sinus floor. This can then be mobilised cranially with the appropriate instruments, together with the overlying Schneiderian membrane. Because membrane flexibility stands at approx. 135 %, some 2 mm to 3 mm of bone height can be gained.
- Intralift™: if substantially more bone is lacking in the maxillary sinus area, bone can be constructed to a virtually unlimited extent using this particularly gentle procedure. A special set (SCA® = Sinus Crestal Approach) opens the bone up to the maxillary sinus mucous membrane (Schneiderian membrane), without damaging the latter. We prefer the alternative, in which the access can also be created by means of an upstream internal lift with the Summers osteotomes; this is advantageous because the Schneiderian membrane is ensured additional protection by the bone flap. Using the Acteon™-Piezo method, sterile saline solution is pumped by way of Piezo waves between the maxillary sinus floor and the mucous membrane using a 'trumpet', resulting in their displacement. The bone replacement material can now be inserted through the small hole into the newly created space. Since this procedure does not involve the free gingiva being folded down, the patients experience no pain or swelling whatsoever and do not need to worry about the risk of an infection. The blood vessels are mainly located in the vestibular area of the maxillary sinus wall. Unlike in a classic external sinus lift, they do not need to be destroyed by the bone window to allow access. As a result, the switchover to autologous bone is much faster, and the implant can be inserted after just three or four months, rather than after six to nine months. However, this method works only with U-shaped sinus profiles, because there must not be any pressure from the Schneiderian membrane onto the augmentation and/or the implants. This would lead to expulsive forces and possibly to the loss of the augmentation and/or the implants. Another indication is a Schneiderian membrane, that is difficult to detach and that is melded to the sinus bone. This can be easily determined beforehand, because this condition is always shown by the constitution of the gingiva: if it can be detached easily, the surgeon will find the same situation with the Schneiderian membrane, and vice versa.
- External sinus lift: this involves mapping the surgical area with an incision solely spanning the alveolar ridge and the gingival margin, without vertical relief, and creating the window using the Piezo saw. The cavity is filled with a mixture of A-PRF membranes and autologous bone, obtained using the Safe Scraper™ before the window is created. Also the NICO surgery in the adjacent wisdom tooth area can be used as a source of bone. However, this bone must be cleaned conscientiously from the fatty degenerative parts! It should never be kept in sterile saline solution until it is needed, because the bone cells will be destroyed. The exudate from the PRF-Membrane or the patient's blood is a more appropriate solution for storage.

Wherever possible, an implant should be inserted consistent with the tent pole principle to grant the Schneiderian membrane cranial protection and to prevent the cavity from collapsing. The best way of performing this procedure is done with the sinus implant developed by Dr Volz, which has a large plate at its tip to support the mucous membrane gently and securely, thus dramatically reducing the risk of perforation. A larger cavity is also created, as the implant works not only as a tent pole, but also has a type of screen at the tip. The external sinus lift is always conducted if the maxillary sinus area presents difficulties or uncertainties, as this method is the most reliable due to direct access.



Meanwhile it has been shown in hundreds of cases that the revolutionary implant design enables formation of a new healthy callus bone, without the use of secondary materials be it of synthetic or human/animal origin.

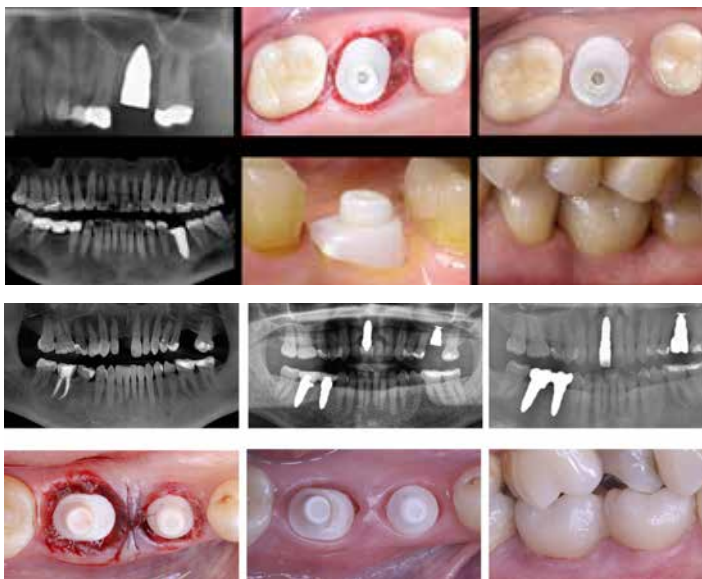


Thereby another milestone in biological dentistry has been created: new endogenous bone always shows the best angiogenesis- the creation of new blood vessels. This is the main criterion whether the bone can be maintained for the next decades in the same quality and quantity or not. Bone substitutes generally present themselves as an obstacle for new bone, reduce the size of remaining cavities and the possibilities of vascularization. Despite of this, in case of implant loss, 'restitution ad integrum' - (maximum relapse to the initial situation) would occur. When using secondary materials implant loss would cause irreversible damage to the mucosa of the maxillary.

- **BONE GROWING IMPLANTS:** these are a new class of implants developed in 2016 by Dr Volz, which best leverage biological laws to allow bone growth in height and width in a single step, without the need for artificial or animal bone. These implants bring about huge cost reductions, as they do not only make additional interventions unnecessary, they also eliminate the costs of bone replacement material, screws, plates, bone blocks and membranes. The sinus implant described above has a wide plate at the tip to create a large, stable cavity in the maxillary sinus that fills with a blood clot, the precursor of bone. There are also a number of other bone-forming implant variants, which use the tent-pole principle to keep the periosteum or the Schneiderian membrane at distance. They therefore create a mechanically stable hollow space, that will reliably fill up with bone, because of the osteoinductive (bone building) potency of the periosteum and the Schneiderian membrane.
- A so-called disc implant features circular rings in the implant body creating space for the periosteum (bone skin); it also builds a stable cavity to be filled with bone.



- The balcony implant has a balcony-like protrusion in its tulip area, which similarly keeps tissue at a distance in the gingival area, seals off the socket and allows new bone to grow.



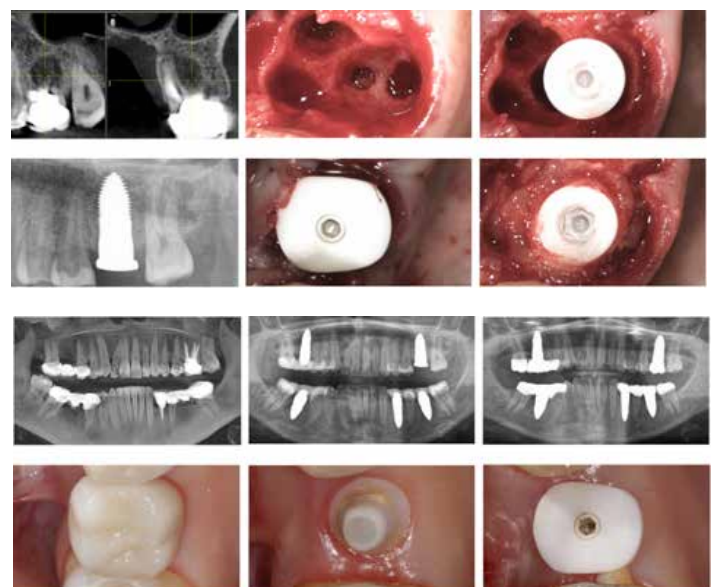
- Oval implants use the same principle as balcony implants, the balcony being configured into two opposite directions.



- A further version using the principles of cavities (bioactive container, stem cell niche) are the so-called short-implants. Rectangular recesses on short implants increase the contact surface and therefore increase the quantity and quality of new formed bone on the implant.



Based on the experience of the above mentioned BONE GROWING IMPLANTS, so-called 'Disk abutments' have been developed by Dr. Volz in cooperation with Prof. Dr. Alain Simonpieri (Developer of the Brushing technique) and Prof. Choukroun (Developer of the PRF-technique) using the sunshade principle intelligently.



All bone reconstruction methods and, in particular, BONE GROWING IMPLANTS, are based on the BONE MANAGEMENT criteria formulated in 2016/2017 by Prof. Choukroun and Dr Volz:

1. Systemic conditions

- a) Strengthen the immune system (supplements, diet, desist from harmful habits)
- b) Increase the ability to form bone (vitamin D3, K2/ MK7, magnesium, zinc, omega-3 fish oil, aspirin)
- c) Activate the parasympathetic nervous system, inhibit the sympathetic nervous system
 - Vitamin D3 has a relaxing effect and lightens the mood
 - Alkaline diet, alkaline bath, alkaline infusion
 - Do not work the day before the operation and for four days thereafter
 - Reduce microwave radiation
 - Administer as much procaine as possible via injection and intravenously

2. Local conditions

- a) Reduce bad inflammation (giant cells) using cortisone + intravenous antibiotics, vitamin D3, vitamin C and aspirin
- b) Activate good inflammation (leukocytes from the A-PRF): they work atraumatically and are minimally invasive but exert a radical effect
- c) Reduce contamination (breath, saliva, etc.): add metronidazole to the augmentation material or membrane
- d) Bone stimulation:
 - Set up bleed points (possibly two weeks beforehand)
 - Replenish the bone
 - Carry out oversized priming
 - Stem cell lacunae
 - Bioactive container = callus bone
 - Reduce compacta and replace with lamellar bone
- e) Improve the extracellular matrix
 - Apical mattress sutures
 - Create cavities with the periosteum
 - Leave sutures for three weeks (monofilaments: nylon, PTFE, Glycolon)
 - Fit spacers
 - SDS tulip, new SDS BONE GROWING IMPLANTS
 - Screws, plates, Choukroun Fast System
- f) Preserve blood flow (Mammoto's Law): zero compression in the area of the compacta. Create cavity.

This bone management protocol presents the holy grail of biological dentistry in a manner of speaking, since all measures have only one purpose: Creating endogenous healthy, vascularized bone and its lifelong maintenance. In general, all SDS implants obtain this purpose and BONE GROWING IMPLANTS do so in particular.

From the biological-immunological perspective all pre-, post, and accompanying procedures next to the intervention, which are described here in THE SWISS BIOHEALTH CONCEPT, fulfill this aim as well. Therefore, all the facets of the concept root in a deep purpose and should not be overseen or disregarded!

3.3.7 FINAL RESTORATION

Final restoration is, of course, always carried out with zirconia ceramic after prior mandibular joint analysis and gnathological treatment. Here, special care must be taken to ensure that any previous bite height loss is compensated. Any loss of bite height reduces the blood flow to the brain (1 mm loss of bite height = 50 % less blood flow in the brain!), as well as venous efflux, which is so extremely important for detoxification. This arises from the fact that a loss of bite height always results in a compression of the mandibular joint, which is located directly adjacent to the large vessels and causes them to be 'pinched'. This principle is not strictly pathological in nature, but has been deliberately built into the evolutionary process. Following tooth loss, humans are quickly consigned to the ageing and death process after fulfilling their reproductive function and do not unnecessarily burden the ecosystem. Nowadays, we do not accept this principle, but wish to (out)live as long as possible in the best of health and with a good quality of life, understood as an 'anti-ageing' concept.

- Two-planed and three-planed defects should be treated with ceramic inlays, e.g. according to the CEREC method. The CEREC method offers an advantage in that defects can be treated immediately in the same session after removing the old filling or caries. It not only reduces the number of follow-up appointments for patients, but also reduces the risk of temporary restoration loss, fracture of tooth cusps and infections of the pulp.

- Crowns and bridges are treated with zirconia, and fixed with glass ionomer cement (Ketac™). This is fully bio-compatible, and any excess can be removed very easily and reliably en bloc during the curing period. A newer approach is to create the surface upon which the papilla is located solely out of zirconia, neither polishing nor overlaying it, but subjecting it to a beam procedure incorporating corundum. As with the attachment of gingival tissue to the margin of the implant, the papilla can also assimilate here and is perfectly stable, resulting in an even better long-term result. However, the patient should not destroy this bond by continuing to use dental floss.

- Treatment with zirconia implants is performed according to the prosthetic handbook (<http://bit.ly/SDS-PROSTHO-DONTICS-HANDBOOK>) and should take into account the following important principles in particular

- Reduced occlusal contacts should be created because unlike natural teeth, the implants are not suspended in a supporting fibrous mechanism and will not yield under pressure. If the crowns and bridges on implants had the same strong occlusal contact as natural teeth, they would experience a significantly larger strain. This can easily be checked: in a light occlusion the 10 μm thick occlusion foil should be able to be pulled through, when biting strongly it should be held.
- Blocking: For the same reason, implants are never blocked with natural teeth, but instead are connected among each other. Fractures are, as a rule, only known to occur in single tooth implants. In so doing, the bone joints must not be blocked, as otherwise this could cause the patient to suffer from stress, headaches and migraines. The symphyses (bone joints) are located in the midline of the lower jaw and in the area of the canines in the upper jaw, which is why large implant work is separated in the midline in the lower jaw and, consists of an anterior tooth segment and two lateral tooth segments in the upper jaw. Cave: the symphysis of the upper jaw is not sited at the midline, as is often mistakenly thought to be the case. This can be verified by looking at any anatomy book or skull. Otherwise, lateral cleft palates, cleft jaws and cleft lips would also not exist exclusively
- PEEK: if both jaws are fully fitted with implants, it should be considered that one jaw should be supplied with PEEK. PEEK (polyetheretherketone) is not only fully biocompatible, but has the same elasticity coefficient as bone does, so that a degree of flexibility is guaranteed. Furthermore, fitting the jaw with PEEK reduces the risk of chipping, i.e. the peeling of veneering ceramic. If gnathological problems occur, the PEEK fitting can be removed again without causing damage. Treatment with PEEK is also indicated when blocking of the symphyses cannot be prevented due to the number of implants and their positioning.



DR. KARL ULRICH VOLZ

1991	Youngest dentist in Germany to found a purely private practice
1991	Dissertation on the "Invasion of Amalgam in the Tooth"
1992	First fully ceramic inlays
1996	Certified as a dentist for naturopathy
1998	Certified as a dentist for implantology
1998	First fully ceramic crowns made of zirconia
1999	Founded the dental clinics Bodensee Zahnklinik AG and Bodensee Dentaltechnik AG
2000	Founded the Medical Masters AG
2000	Developed the first ceramic implants made of zirconia
2001	Founded the Tagesklinik Konstanz dental clinic
2003	Founded Z-Systems GmbH
2004	First CE certification for a ceramic implant
2004 - 2012	Developed the first two-piece, reversible screw-in ceramic implant SDS2.0
2006	Insertion of first implants with ultrasound using polylactide welding
2007	Founded SDS Swiss Dental Solutions AG
2008	Developed Sonic Weld membrane welding for the GBR technique
2012 - 2014	Developed the hybrid implant SDS1.1
2014	President of the International Society of Metal-Free Implantology ISMI e.V. (Regd Assocn)
2014	Developed the 'SCC Short Cut Concept by Dr Volz'
2015	Formulated the 'Dr Volz Biological Dentistry' concept
2016	Founded the SWISS BIOHEALTH® CLINIC and developed the 'ALL-IN-ONE' concept



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