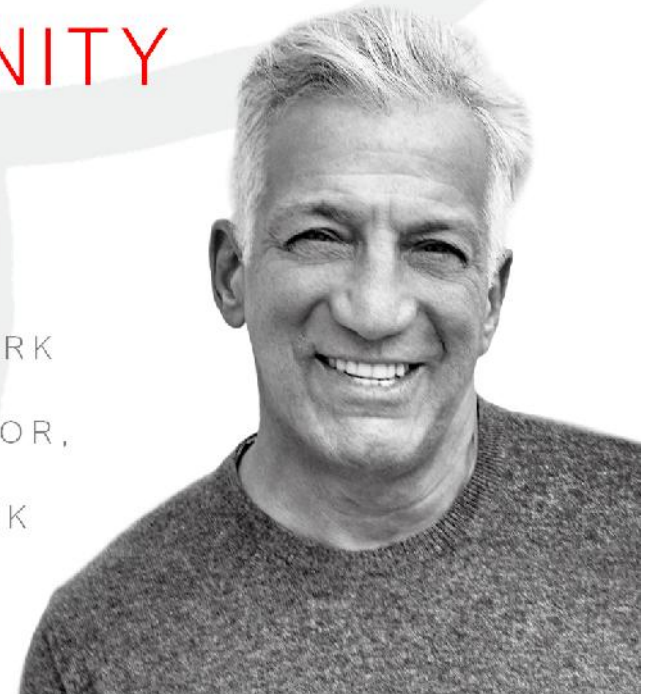




rejuvenation
DENTISTRY

THE ESSENTIAL LINK BETWEEN THE ORAL MICROBIOME, NUTRITION & SYSTEMIC IMMUNITY

PRESENTED BY
DR. GERRY CURATOLA
FOUNDER, DIRECTOR
REJUVENATION DENTISTRY, NEW YORK
•
ADJ. CLINICAL ASSOCIATE PROFESSOR,
NEW YORK UNIVERSITY
COLLEGE OF DENTISTRY, NEW YORK



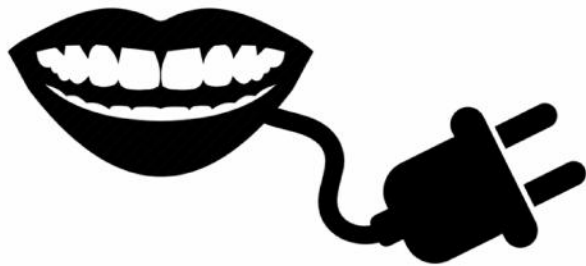
“The states of health or disease are the expressions of the success or failure experienced by the organism in its efforts to respond adaptively to environmental challenges”
(Rene Dubos, 1965).

Oral Health is the “800 lb. Gorilla” in the “Wellness Room.”

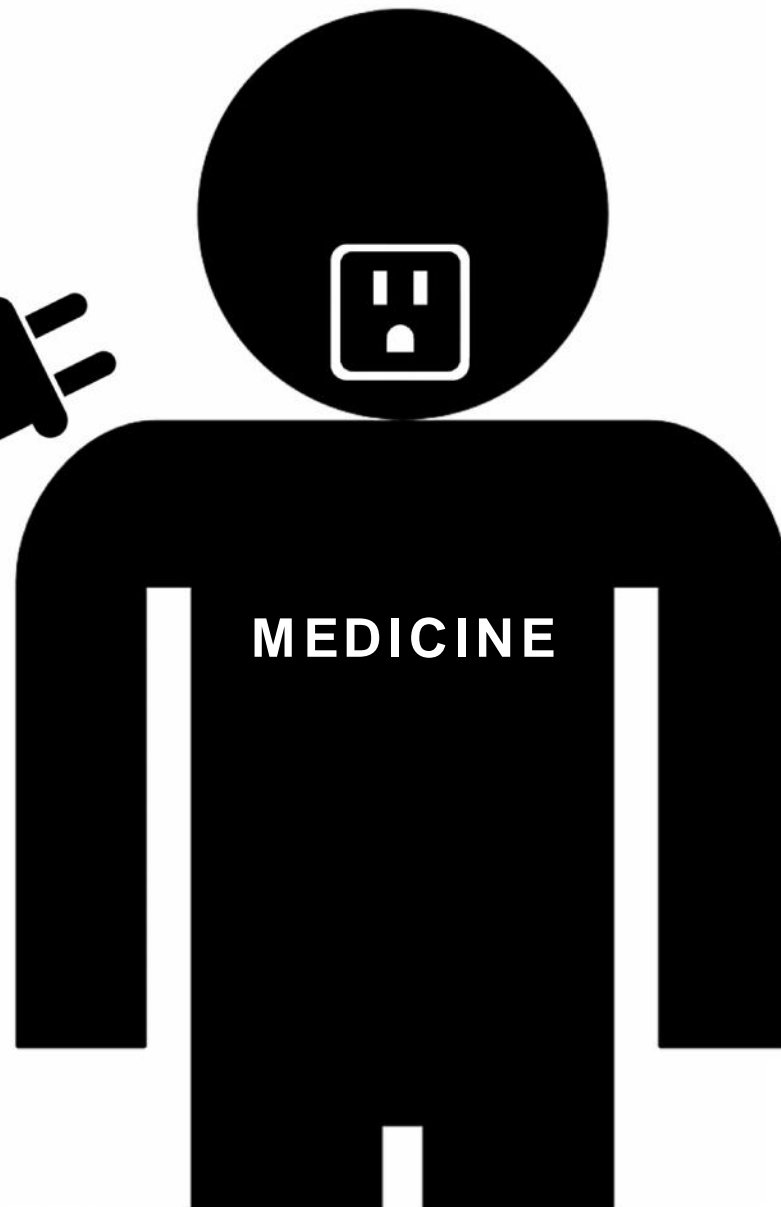
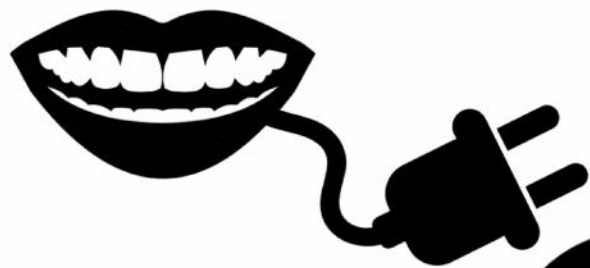


Healthy Mouth=Healthy Body

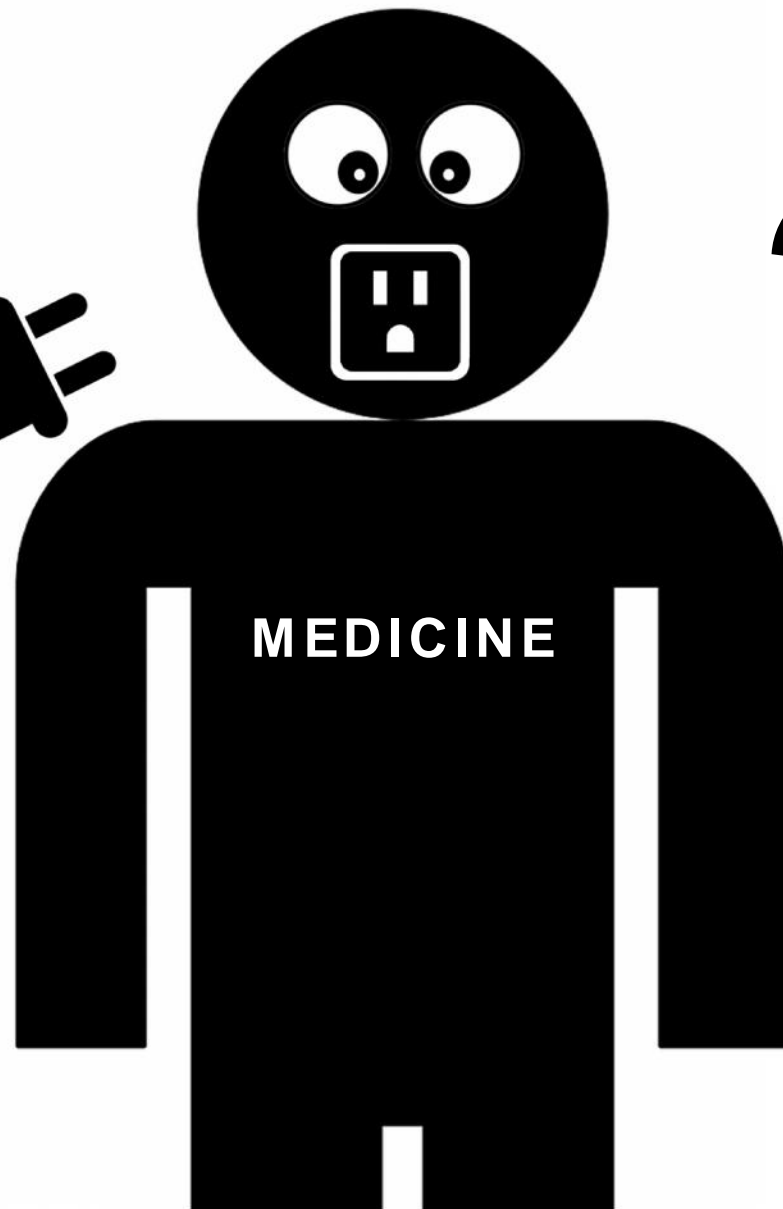
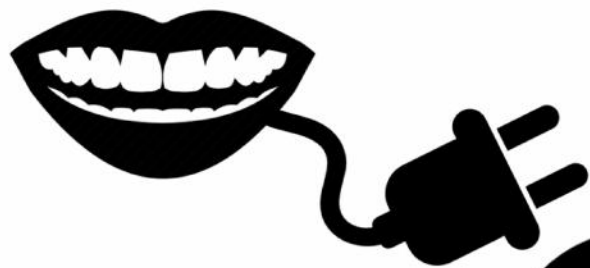
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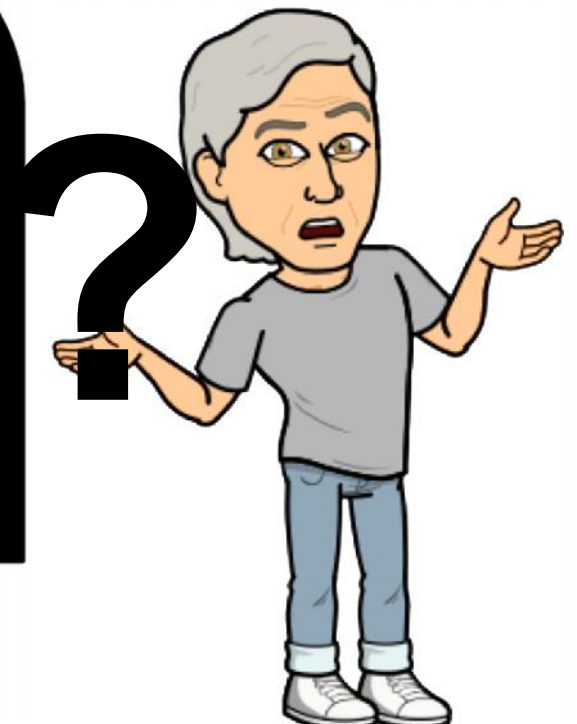
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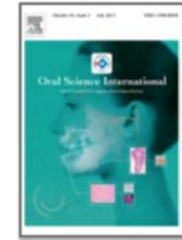
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Oral Science International

Volume 14, Issue 2, July 2017, Pages 27-32



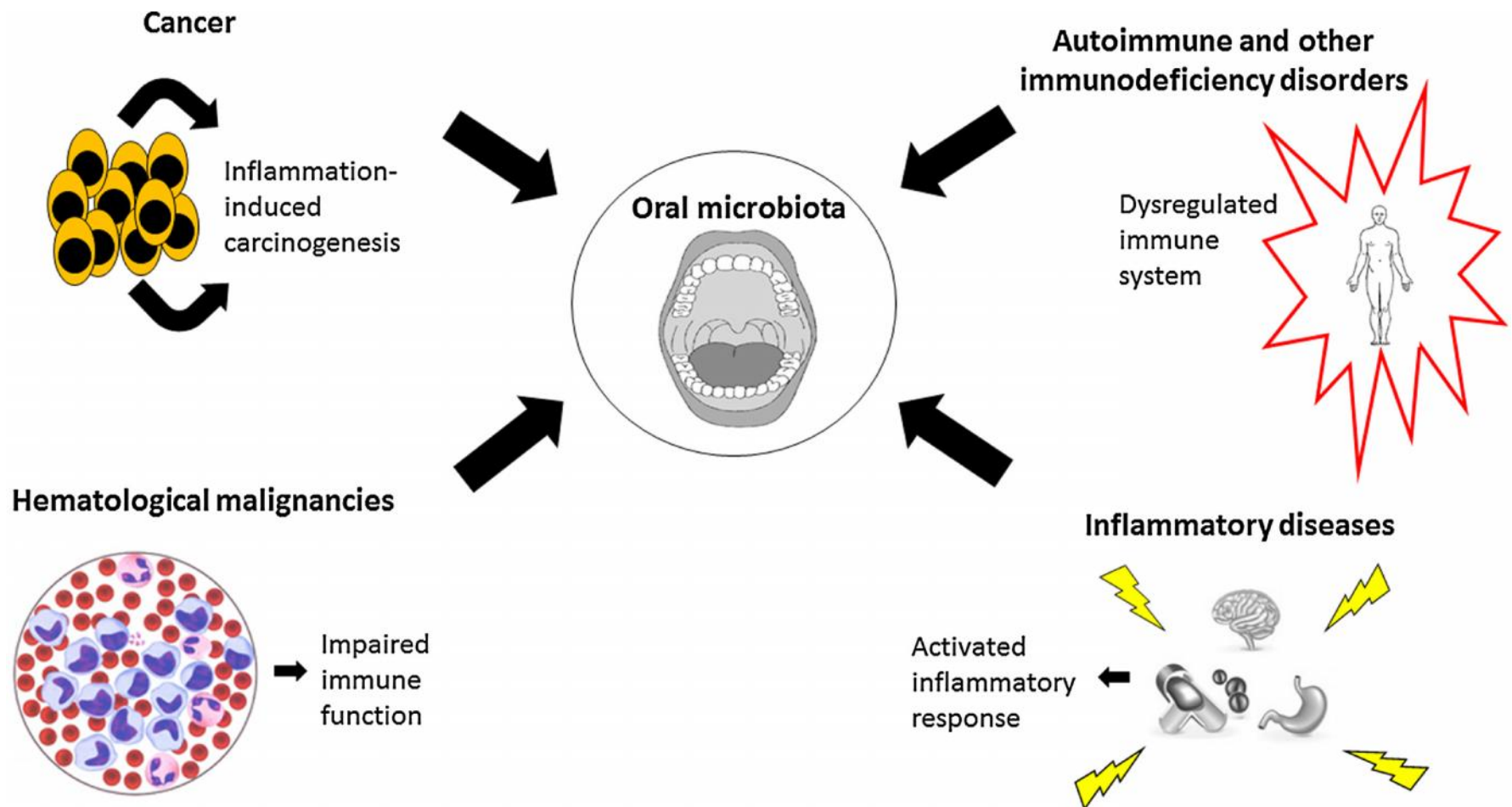
Review

Human diseases, immunity and the oral microbiota—Insights gained from metagenomic studies

Adi Idris ^a  , Sumaira Z. Hasnain ^b, Lu Z. Huat ^a, David Koh ^{a, c}

— —

“In the oral cavity, the immune system not only has to harmonize with the ecology of commensal bacteria, fungi and viruses but also should be able to defend against pathogenic microbes. In fact, the oral microbiota is altered in situations when the immune system is dysregulated.”





Dr. Weston A. Price: “Father of The Mouth-Body Connection”

THE DENTAL REVIEW.

Vol. XXXI.

CHICAGO, APRIL, 1917

No. 4

THE PRESENT STATUS OF OUR KNOWLEDGE OF THE RELATION OF MOUTH INFECTION TO SYSTEMIC DISEASE.*

BY DR. WESTON R. PRICE, CLEVELAND, OHIO.

Mr. Chairman, and Members of the St. Louis Dental Society.

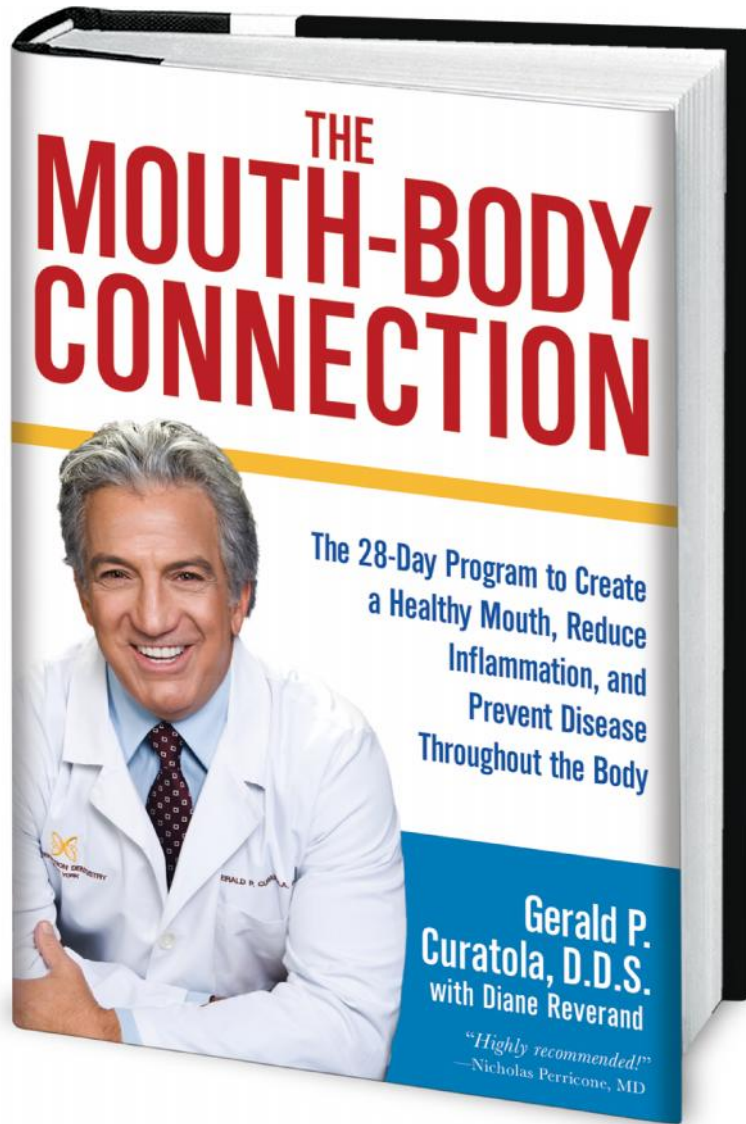
Without any introduction whatever of this particular subject, I shall ask you to consider with me one thing: That the acquisition of a new truth is identical with the acquisition of a new sense, for with it you can conceive, perceive and recognize things that you could not recognize before you had that new truth, and with that new truth you can perceive things that people without that truth cannot perceive. Have you got it? The acquisition of a new truth is identical with the acquisition of a new sense.

Let me give you an illustration. You take your little child out into the woods with you in the summertime when everything is dry. And you take your little revolver or your gun along, and you take some matches and a sharp knife or two. You do not leave them where that child can get hold of them. The child knows what a match is, it can strike a match, but the child does not know the danger of a fire.

Another illustration: Some twenty-three years ago next month, I was in Grand Forks, North Dakota, and came down with typhoid fever. One day I found myself lying on a cot in a hospital there with a physician on each side of the cot who were arguing, and almost coming to blows in discussing the question as to whether or not there was any truth in the germ theory of disease. Only twenty-three years ago; and the man who did not believe in the germ theory of disease was perfectly consistent in that belief, for

*Delivered before the St. Louis Dental Society, 60th anniversary, November, 1916.

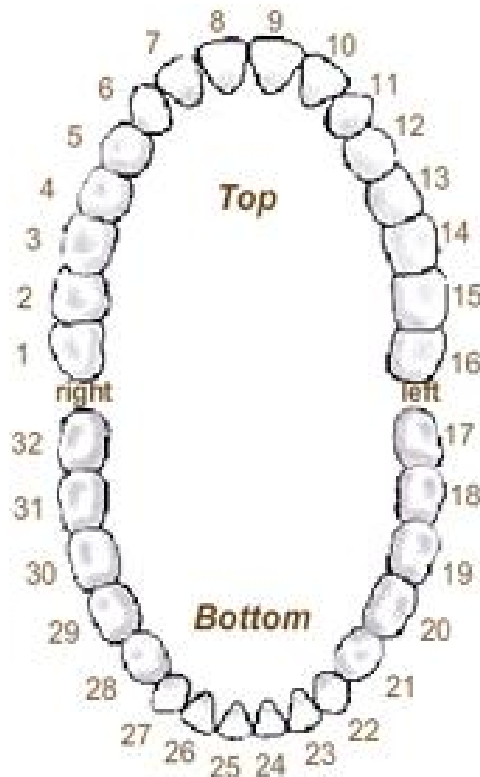




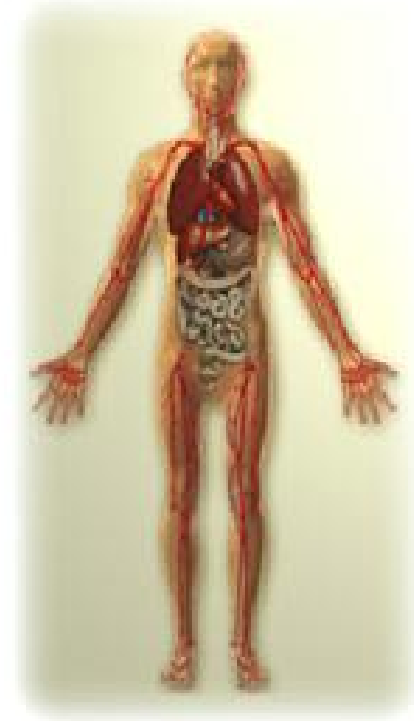
The MOUTH acts as a MIRROR and GATEWAY, and reflects what is happening in the rest of your body. Chronic, low-grade oral disease is a major source of inflammation throughout your body, which can result in serious systemic problems, including cardiovascular disease, type 2 diabetes, obesity, and premature birth.

The Mouth as “Mirror to the Body”

Meridian Tooth Chart



Each tooth is related to an acupuncture meridian which is related to various organs, tissues and glands in the body on this particular meridian or “energy highway.” This connection is so apparent that an experienced dentist can often assess your overall health and wellness by reviewing your dental condition. If a person has a weak internal organ, the condition of the associated meridian tooth could make it considerably more problematic.





SECRETS YOUR TONGUE REVEALS

About Your
HEALTH



FISSURES

Tongue fissures are a common symptom in 6 to 20 % of patients with psoriasis skin disorder.



WHITE CREAMY LAYER/PATCHES

A white, cottage cheese-like coating on the tongue, is one of the most common symptoms of "oral candidiasis" (OC) – a yeast infection of the mouth.



ABNORMAL SMOOTHNESS

Abnormal Smoothness of the tongue is known as atrophic glossitis (AG).



BRIGHT REDNESS

A bright red tongue could be a symptom of a Vitamin B12 deficiency.



THICK YELLOW COATING

A thick yellow coating on the tongue might just be indicative of excess bacterial activity.



BLACK AND HAIRY

A black and hairy tongue might be caused by excessive smoking and poor oral hygiene.



PAINLESS BUMP(S)















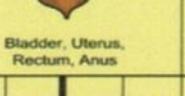








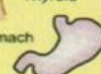















































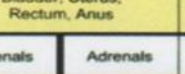









A painless bump that appears on the side of the tongue & goes away in 2 weeks or less is not a cause for alarm. However, if it persists longer then it could be an early sign of oral cancer.



SORES

Tongue sores usually result from eating something sharp or from accidentally biting your tongue. However, they may also signify stress, anxiety or a hormonal imbalance.

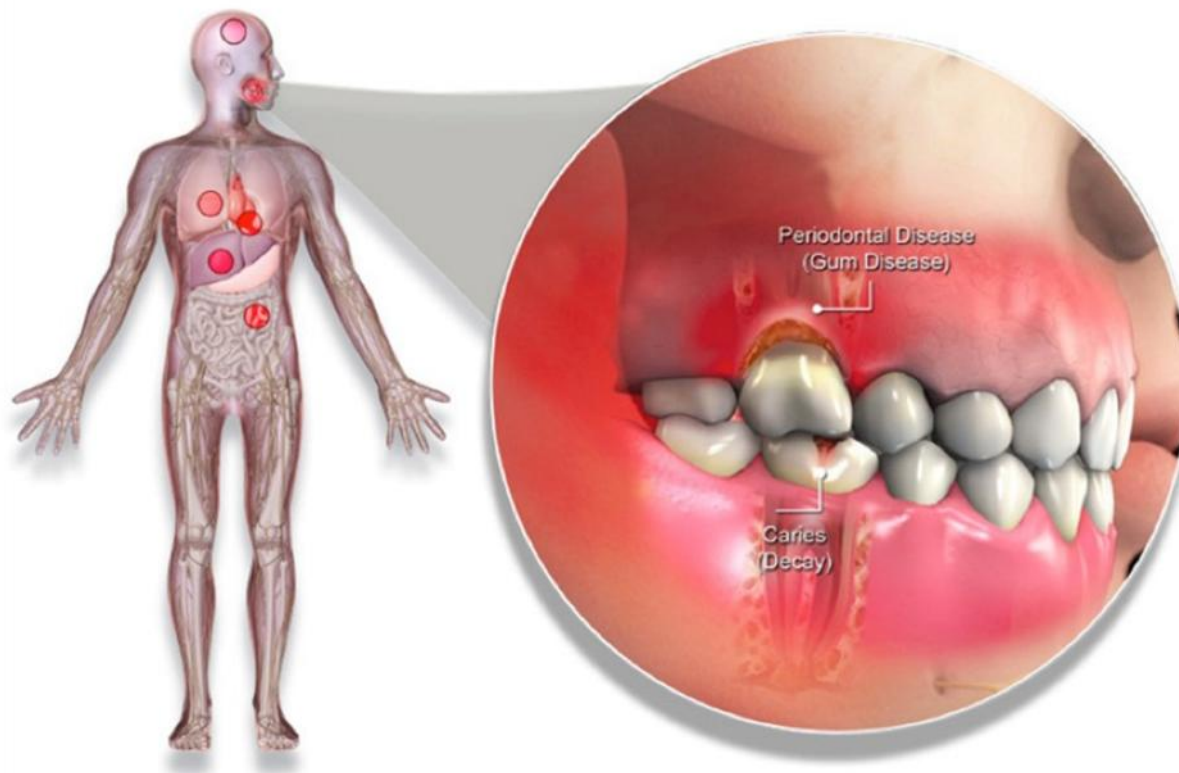
Tooth / Organ Relationship Chart

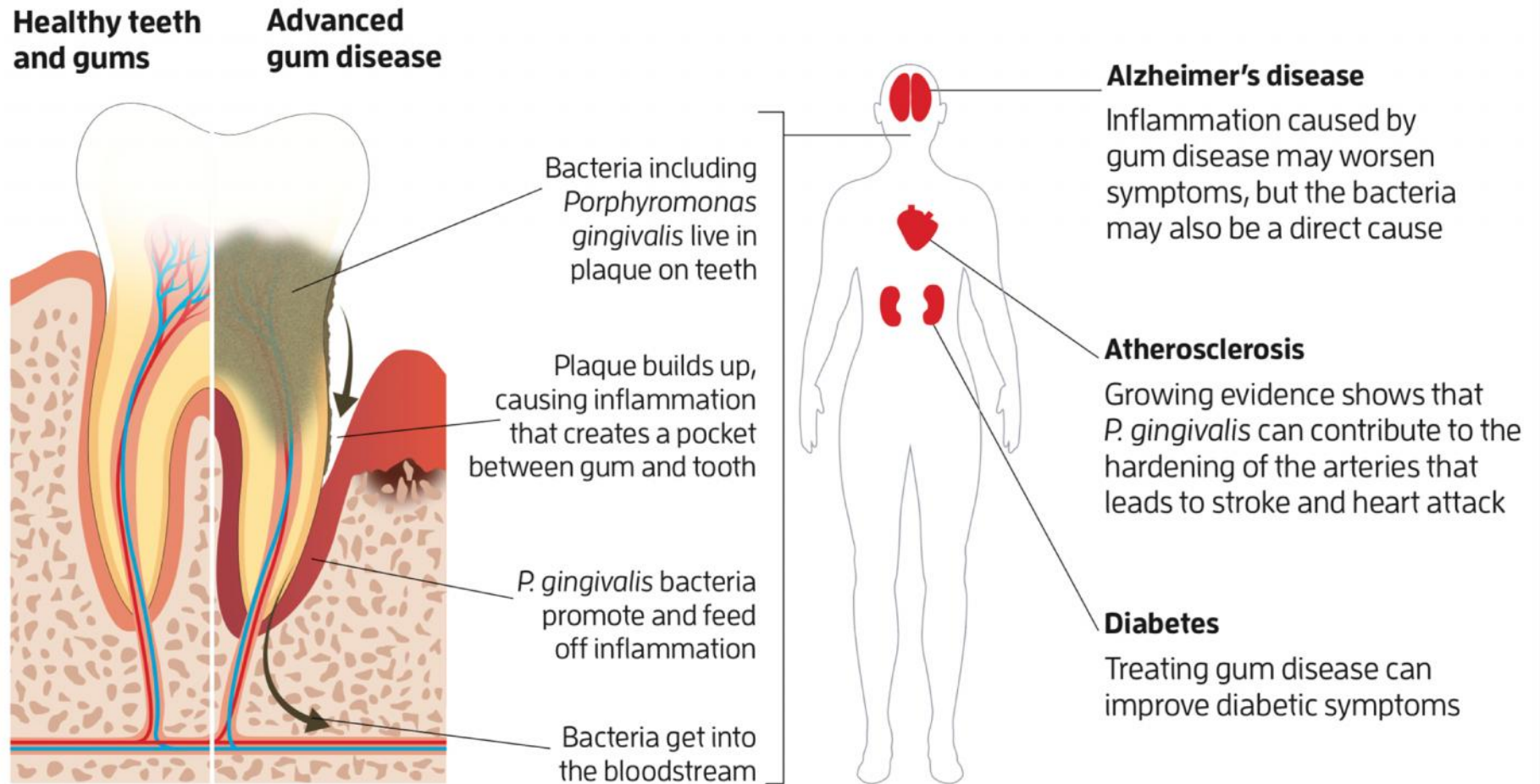
Glands	Anterior pituitary	RIGHT BREAST			Posterior pituitary	Intermediate lobe of pituitary	Pineal	Pineal	Intermediate lobe of pituitary	Posterior pituitary	LEFT BREAST			Anterior pituitary		
		Parathyroid	Thyroid	Thymus							Thymus	Thyroid	Parathyroid			
Organs	Heart  Small Intestine  Endocrine gland, Pericardial 	Breast  Thyroid  Stomach  Pancreas 	Lungs  Large Intestine 	Liver  Gall Bladder  Eye 	Kidneys  Prostate  Bladder, Uterus, Rectum, Anus 	Liver  Gall Bladder  Eye 	Lungs  Large Intestine 	Esophagus  Breast  Thyroid  Stomach  Spleen 	Heart  Small Intestine  Endocrine gland, Pericardial 							
Teeth	 1	 2	 3	 4	 5	 6	 7	 8	 9	 10	 11	 12	 13	 14	 15	 16
Upper Jaw	3 rd Molar (wisdom)	2 nd Molar	1 st Molar	2 nd Bicuspid (pre-molar)	1 st Bicuspid (pre-molar)	Canine (cuspid)	lateral incisor	Central incisor	Central incisor	lateral incisor	Canine (cuspid)	1 st Bicuspid (pre-molar)	2 nd Bicuspid (pre-molar)	1 st Molar	2 nd Molar	3 rd Molar (wisdom)
Lower Jaw	3 rd Molar (wisdom)	2 nd Molar	1 st Molar	2 nd Bicuspid (pre-molar)	1 st Bicuspid (pre-molar)	Canine (cuspid)	lateral incisor	Central incisor	Central incisor	lateral incisor	Canine (cuspid)	1 st Bicuspid (pre-molar)	2 nd Bicuspid (pre-molar)	1 st Molar	2 nd Molar	3 rd Molar (wisdom)
Teeth	 32	 31	 30	 29	 28	 27	 26	 25	 24	 23	 22	 21	 20	 19	 18	 17
Organs	Heart  Small Intestine  Endocrine gland, Pericardial 	Lungs  Large Intestine 	Stomach  Pancreas 	Liver  Eye 	Kidneys  Prostate  Bladder, Uterus, Rectum, Anus 	Liver  Eye 	Stomach  Spleen 	Lungs  Large Intestine 	Heart  Small Intestine  Endocrine gland, Pericardial 							
Glands				Ovaries	Testicles	Adrenals	Adrenals	Ovaries	Testicles							
Element	Fire	Earth		Metal		Wood	Water	Water	Wood	Metal		Earth		Fire		

Right Side

Left Side

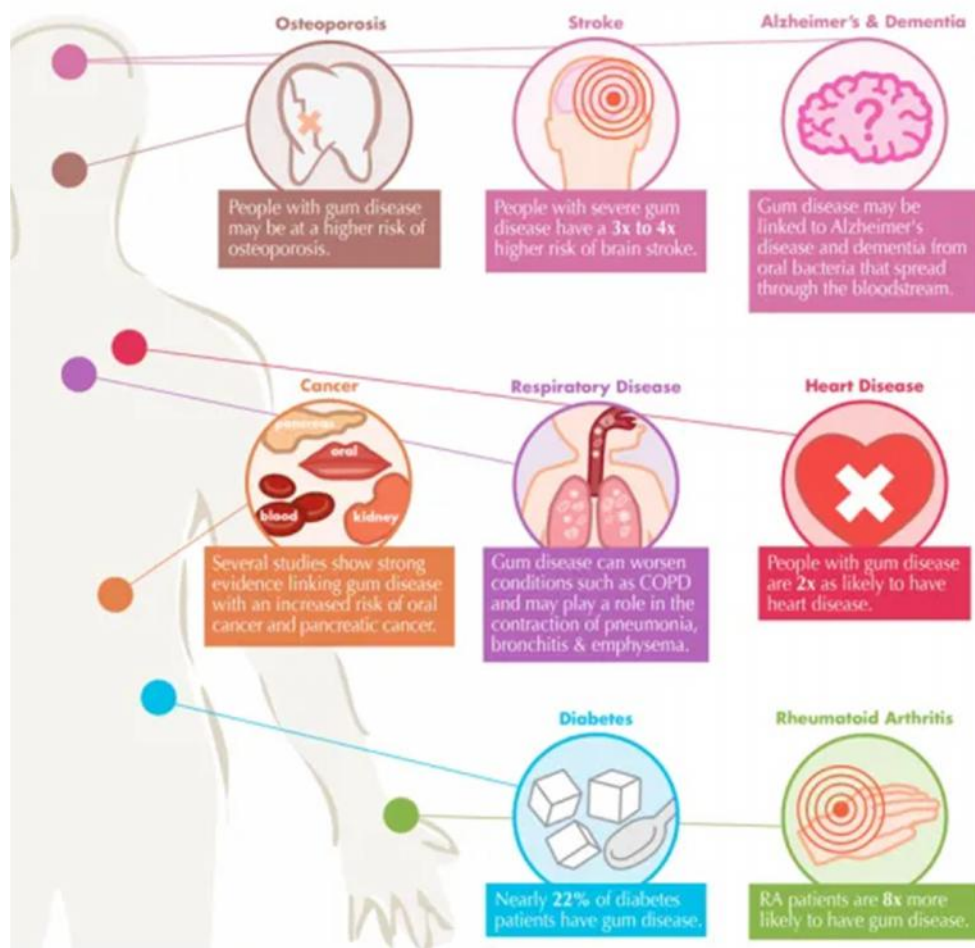
THE MOUTH AS A GATEWAY







Gum Disease & Body Health



56.4%

MEN

Impotence

3 times more likely

Cancer

14% more likely to develop cancers

Kidney cancer **+49%**

Pancreatic cancer **+54%**

Blood cancers **+30%**

Diabetes

Direct link between gum disease and onset of diabetes

38.4%



WOMEN

Puberty and Menstruation

Increased gingivitis due to hormones

Pregnancy

More likely to have a preterm baby.

Menopause

86% more likely to develop gum disease post-menopause

Mediators of Inflammation

Volume 2019, Article ID 1029857, 14 pages

<https://doi.org/10.1155/2019/1029857>

Review Article

Chronic Inflammation as a Link between Periodontitis and Carcinogenesis

Anilei Hoare, Cristopher Soto, Victoria Rojas-Celis, and Denisse Bravo 

Oral Microbiology Laboratory, Department of Pathology and Oral Medicine,
Faculty of Dentistry, Universidad de Chile, Santiago, Chile

Chronic inflammation has also been associated with several systemic diseases, like cancer. The literature demonstrates that either inflammatory mediators produced during periodontitis development could mediate carcinogenesis or periodontal bacteria can exert its effect directly in transforming cells.

Gum disease bacteria deemed a catalyst for cancer cell growth.

17th April 2015

New research published in the journal immunity has suggested that a bacteria that causes gum disease may aid the growth of cancer cells.

It was discovered that the bacteria fusobacterium nucleatum, which has heavy links with gum disease could hamper you body's ability to fight off cancer. When combined with human tissue cells researchers found the bacteria attached itself to parts of the immune system responsible for attacking cancer cells therefore preventing them from performing this function!

A HISTORY OF **GUM DISEASE**
CAN INCREASE RISK OF:

BREAST CANCER

LUNG CANCER

ESOPHAGUS CANCER

GALLBLADDER CANCER

MELANOMA SKIN CANCER.

So how does this happen?



Healthy Gums ➡ Gingivitis ➡ Periodontitis ➡ Advanced Periodontitis

The progression from health to disease

SO HOW DO WE GET FROM THIS.....

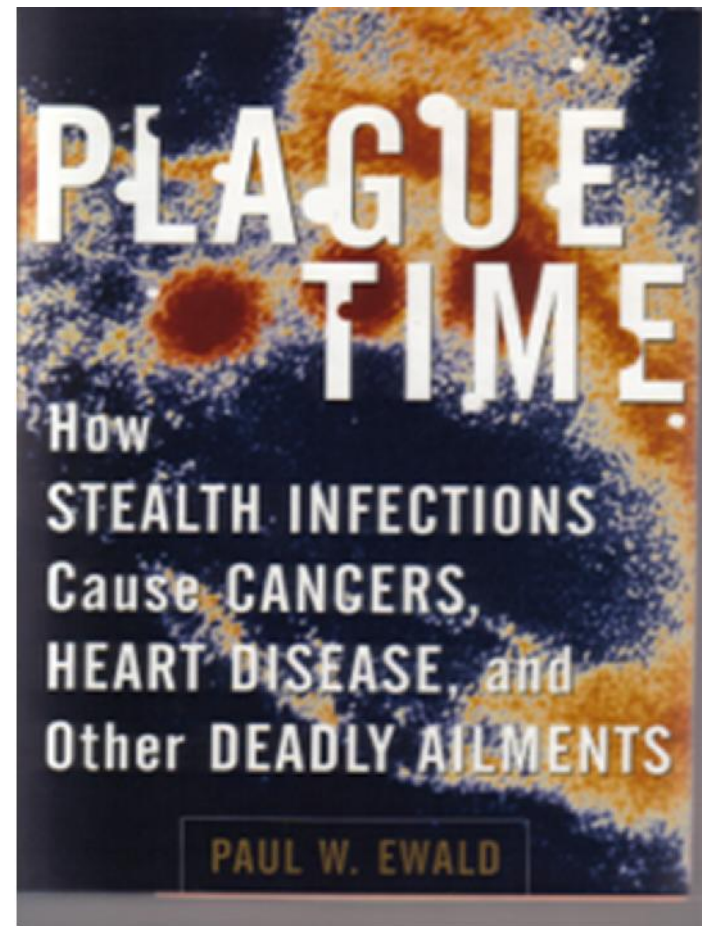


.....TO THIS? (HINT: IT'S ALL ABOUT THE TERRAIN.)



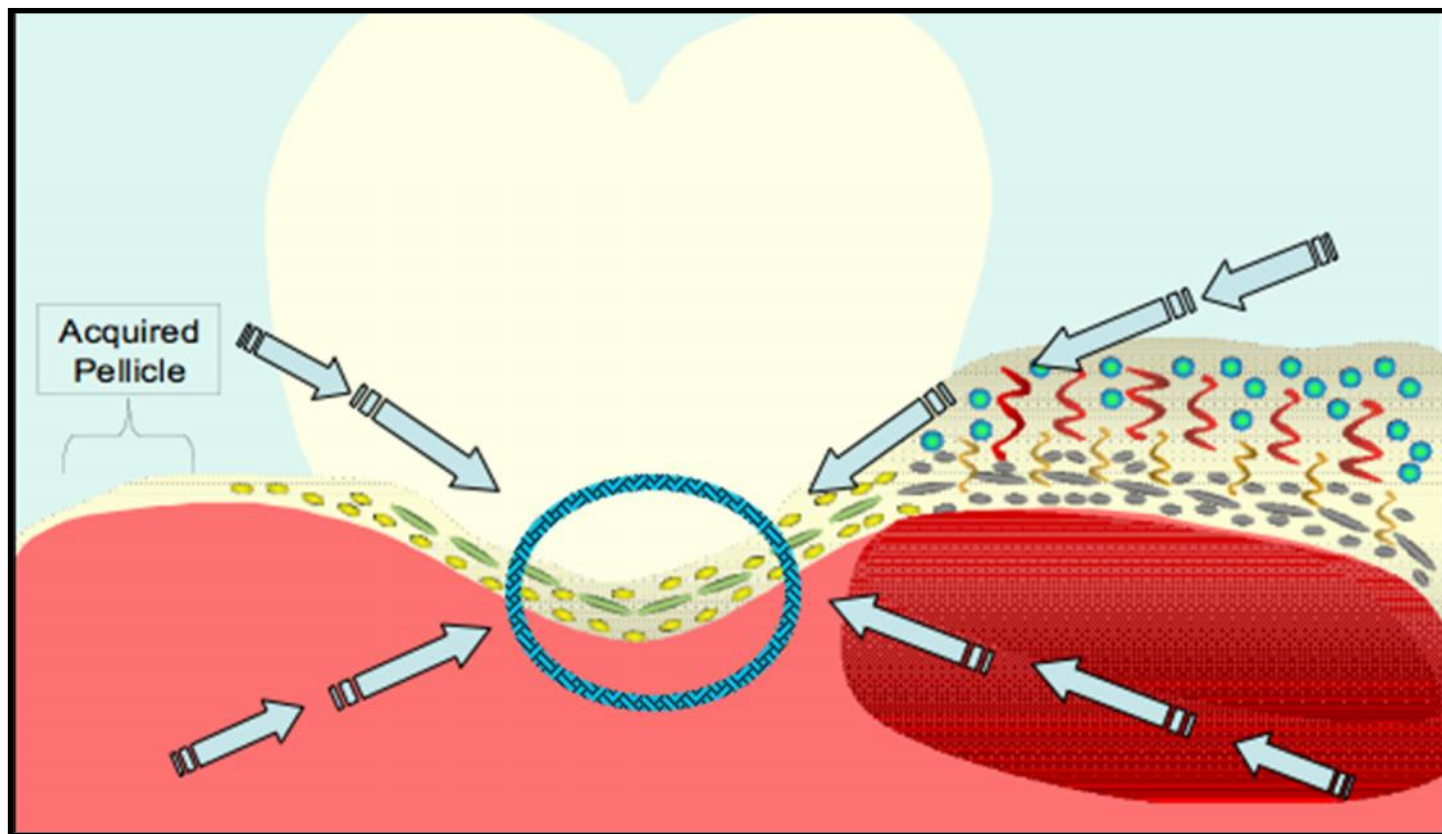
Do you know what your bugs are doing?

Gum Disease: a Major Source of Chronic Low-Grade Inflammation



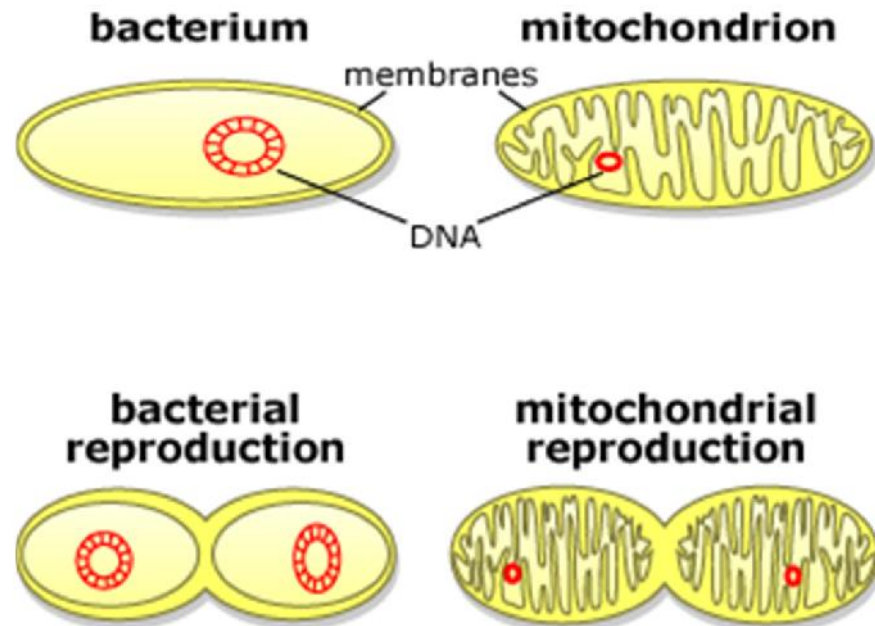
THE ORAL MICROBIOME

Homeostasis (balance) is the center of health.





THE ANCIENT RELATIONSHIP OF MAN & MICROBE





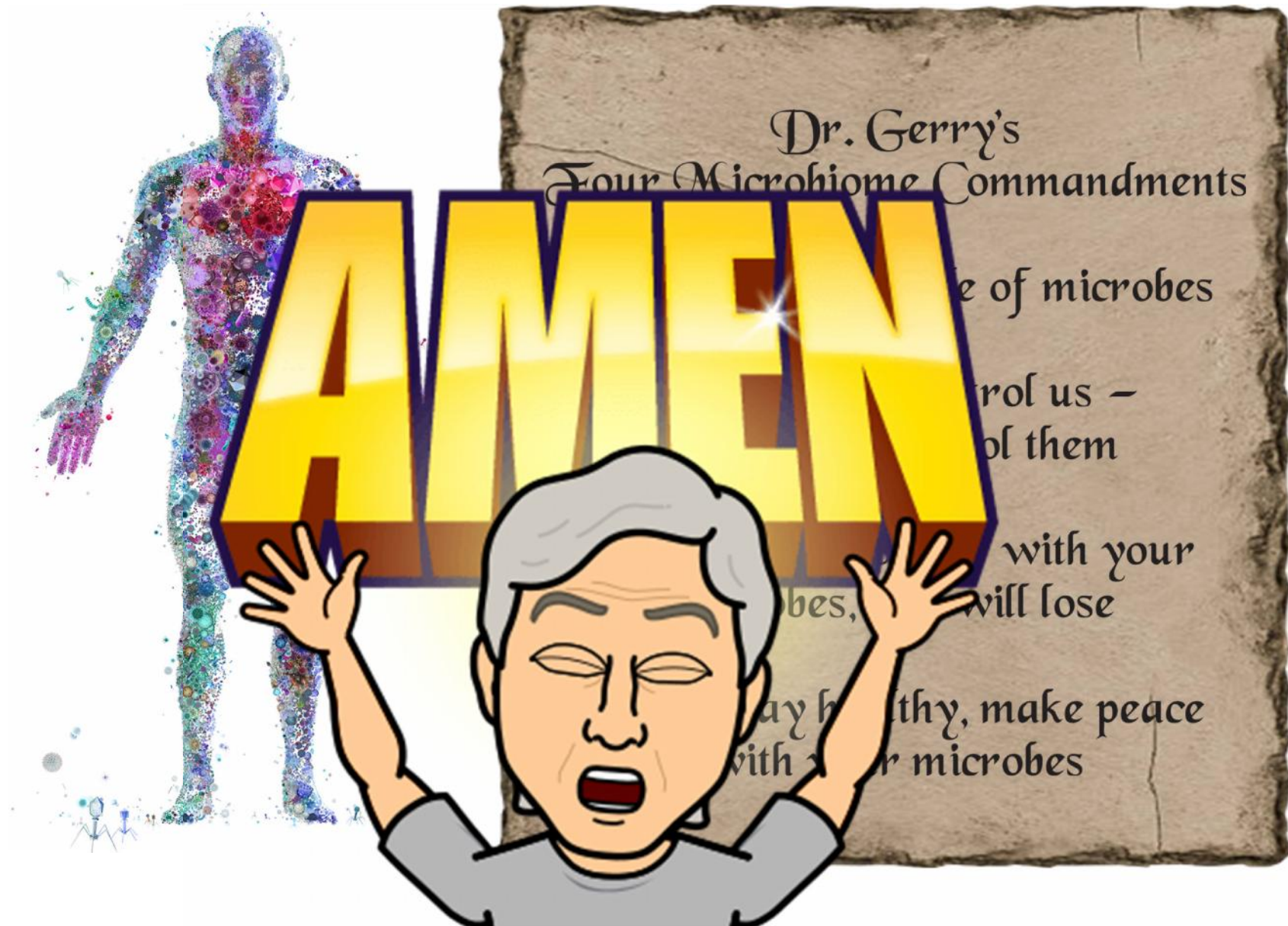
Dr. Gerry's Four Microbiome Commandments

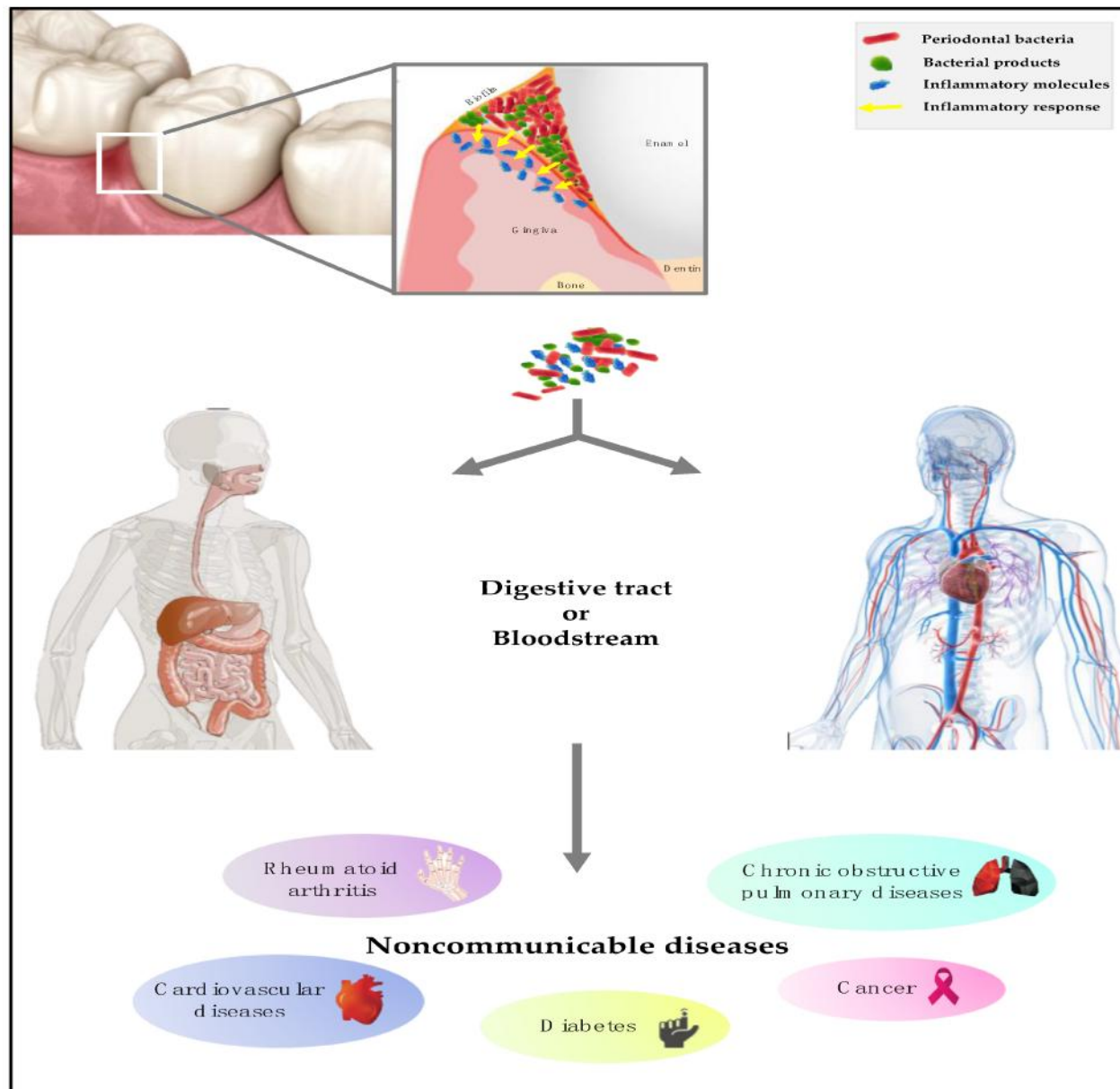
I Humans are made of microbes

II Microbes control us –
we do not control them

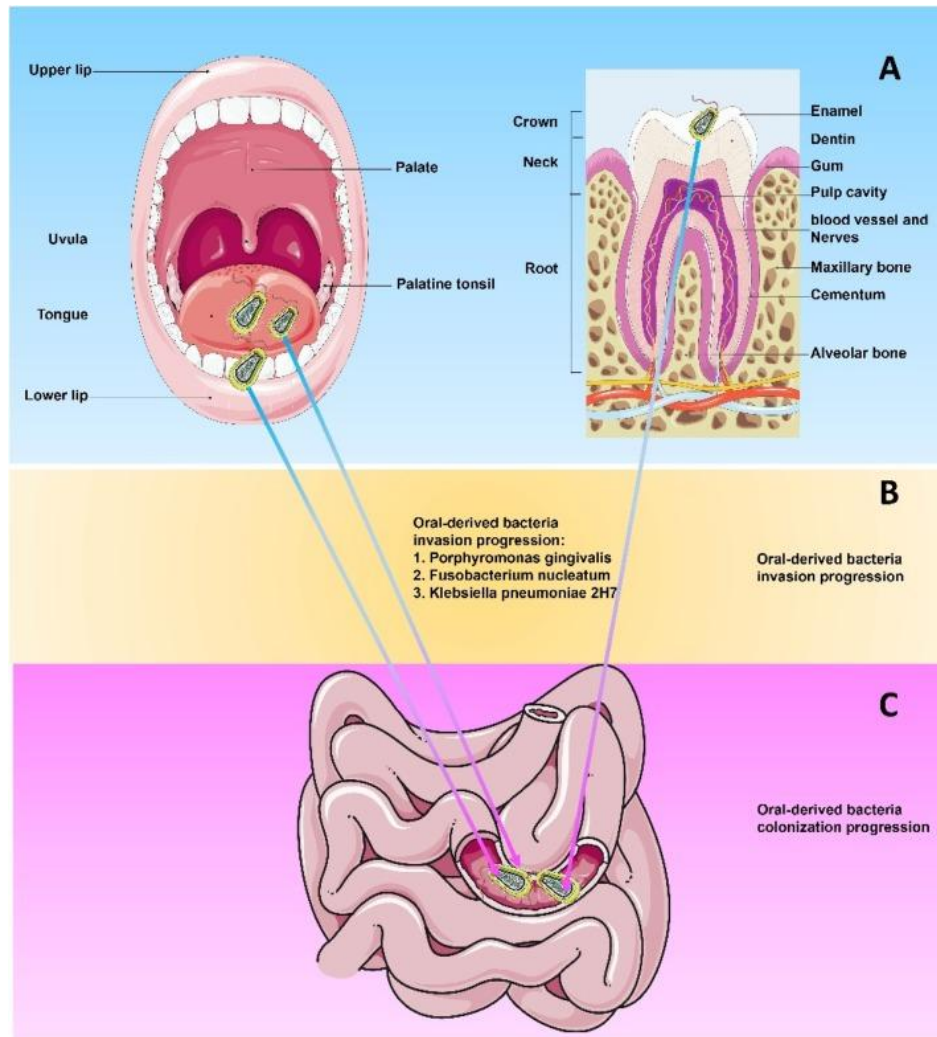
III If you go to war with your
microbes, you will lose

IV To stay healthy, make peace
with your microbes





Interaction Between Oral Microbiome and The Gut: Oral Bacteria Induce Intestinal Inflammation



Recent studies have shown that oral-derived bacteria can colonize the intestines and persist there, leading to activation of the intestinal immune system and chronic inflammation and dysregulation of the immune system.

Progression of oral bacteria in the gut include:

1. Porphyromonas gingivalis
2. Fusobacterium Nucleatum
3. Klebsiella pneumoniae 2H7
(ulcerative colitis and Crohn's)



Human Microbiome Journal

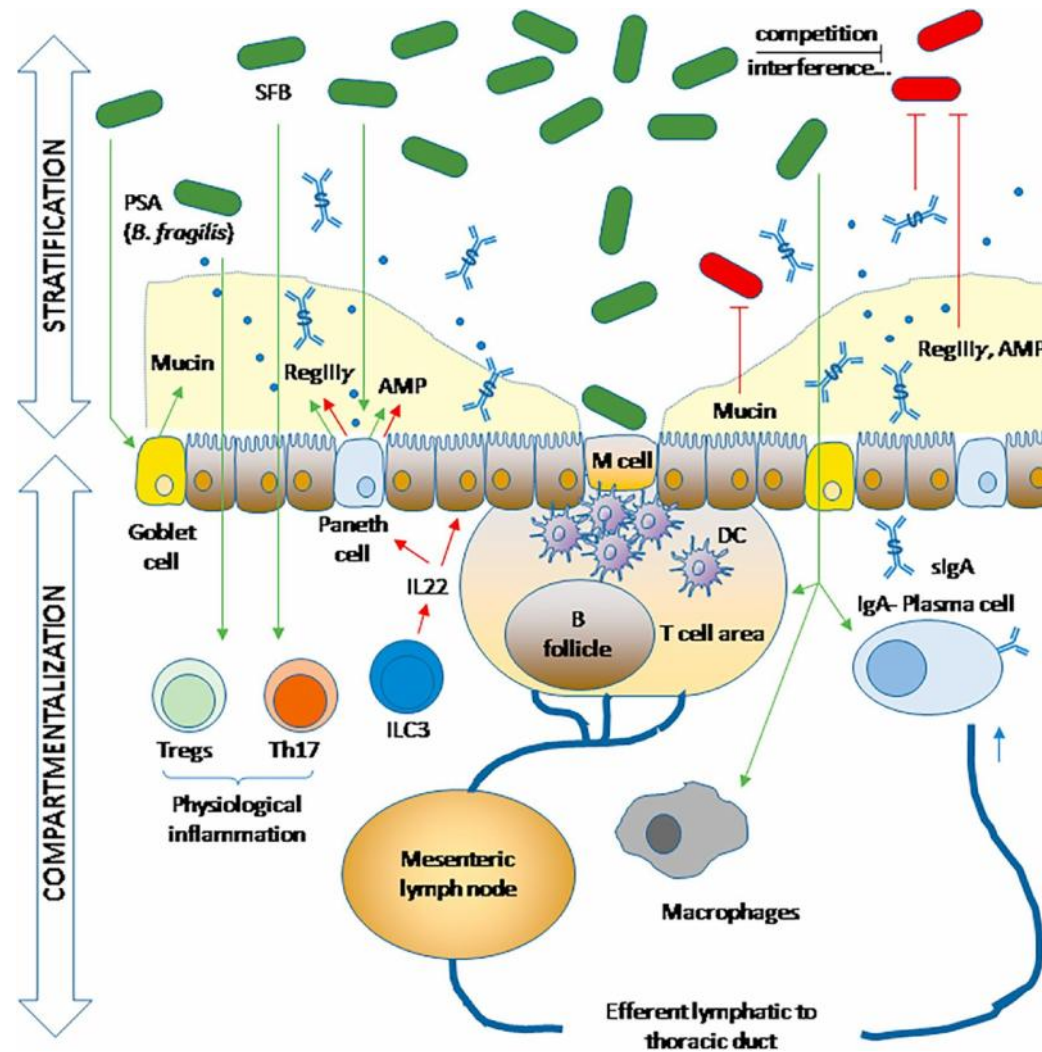
Volume 10, December 2018, Pages 11-20



Microbiome and the immune system: From a healthy steady-state to allergy associated disruption

“Microbiome and the immune system are constantly shaping each other, in a mutual aim to thrive, defining the unstable equilibrium of the healthy individual. Microbiome is growingly involved in dysimmune conditions such as allergy, asthma, autoimmunity, and primary or acquired immune deficiencies.”

Stratification of the Microbiome and Compartmentalization by the Immune System



THE ORAL MICROBIOME



ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

Current Opinion in
Microbiology

***Fusobacterium nucleatum*: a commensal-turned pathogen**

Yiping W Han^{1,2,3}



Fusobacterium nucleatum is an anaerobic oral commensal and a periodontal pathogen associated with a wide spectrum of human diseases. This article reviews its implication in adverse pregnancy outcomes (chorioamnionitis, preterm birth, stillbirth, neonatal sepsis, preeclampsia), GI disorders (colorectal cancer, inflammatory bowel disease, appendicitis), cardiovascular disease, rheumatoid arthritis, respiratory tract infections, Lemierre's syndrome and Alzheimer's disease. The virulence mechanisms involved in the diseases are discussed, with emphasis on its colonization, systemic dissemination, and induction of host inflammatory and tumorigenic responses. The FadA adhesin/invasin conserved in *F. nucleatum* is a key virulence factor and a potential diagnostic marker for *F. nucleatum*-associated diseases.

Addresses

¹ Division of Periodontics, Section of Oral Diagnostics & Sciences, College of Dental Medicine, Columbia University Medical Center, United States

² Department of Microbiology & Immunology, College of Physicians & Surgeons, Columbia University Medical Center, United States

animalis, *ss fusiforme*, *ss nucleatum*, *ss polymorphum*, and *ss vincentii*, whose prevalence in disease vary [3[•],4–6]. This article reviews the infections implicating *F. nucleatum*, along with the virulence mechanisms involved.

Diseases implicating *F. nucleatum*

Summarized in Table 1 are diseases in which *F. nucleatum* has been implicated.

Oral infections

F. nucleatum is one of the most abundant species in the oral cavity, in both diseased and healthy individuals [7–10]. It is implicated in various forms of periodontal diseases including the mild reversible form of gingivitis and the advanced irreversible forms of periodontitis including chronic periodontitis, localized aggressive periodontitis and generalized aggressive periodontitis [8–15] (Table 1). It is also frequently associated with endodontic infections such as pulp necrosis and periapical periodontitis

PERSPECTIVE ARTICLE

Front. Cell. Infect. Microbiol., 26 June 2014 | <https://doi.org/10.3389/fcimb.2014.00085>

Acquiring and maintaining a normal oral microbiome: current perspective

 **Egija Zaura**^{1*},  **Elena A. Nicu**²,  **Bastiaan P. Krom**¹ and  **Bart J. F. Keijser**^{3,4}

¹Department of Preventive Dentistry, Academic Centre for Dentistry Amsterdam, Amsterdam, Netherlands

²Department of Periodontology, Academic Centre for Dentistry Amsterdam, Amsterdam, Netherlands

³Microbiology and Systems Biology, TNO Earth, Environmental and Life Sciences, Zeist, Netherlands

⁴Top Institute Food and Nutrition, Wageningen, Netherlands

The oral microbiota survives daily physical and chemical perturbations from the intake of food and personal hygiene measures, resulting in a long-term stable microbiome.

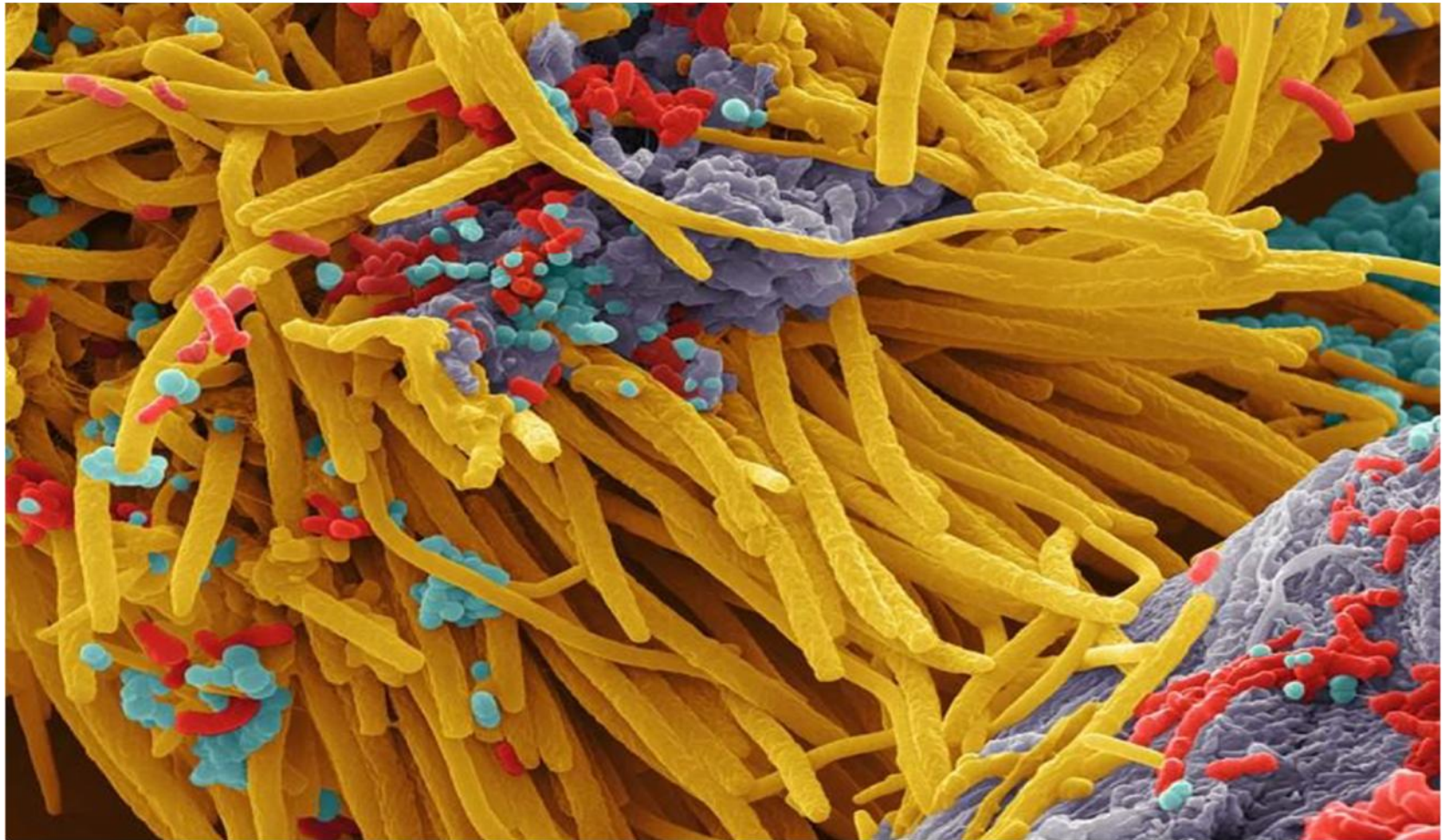
Factors Affecting Dysbiosis of the Oral Microbiome and Corresponding Dysregulation of the Immune System

1. Diet and Nutrition
2. Toxicity/Endotoxin Production (RCT, Cavitations, titanium implants)
3. Sleep/Airway Health (OSA- obstructive sleep apnea)
4. Harmful Oral Care Products (detergents, antimicrobials, chemicals)
5. Lack of Exercise
6. Stress (mental, emotional and physical)

Factors Affecting Dysbiosis of the Oral Microbiome and Corresponding Dysregulation of the Immune System

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6. Stress (mental, emotional and physical)

NUTRITION & THE ORAL MICROBIOME



NUTRITION & THE ORAL MICROBIOME

Nutritional Correlates of Human Oral Microbiome

[Journal of the American College of Nutrition](#)

36(2):1-11 · October 2016

Saturated fatty acids (SFAs) and vitamin C

intakes were consistently correlated with alpha (within-subjects) diversity indexes in both richness and diversity. SFA intake was positively correlated with relative abundance of betaproteobacteria and fusobacteria. Vitamin C and other vitamins with correlated intakes-for example, the **B vitamins and vitamin E**-exhibited positive correlations with fusobacteria class, its family Leptotrichiaceae and a clostridia family Lachnospiraceae.



In Brief | [Published: 15 March 2013](#)

Microbiome

Diet and oral microbiota go hand in hand

[Rachel David](#)

Nature Reviews Microbiology **11**, 223(2013) | [Cite this article](#)

130 Accesses | **2** Altmetric | [Metrics](#)

In this study, the authors assessed whether changes in diet during human evolution affected the oral microbiota. By analysing samples of calcified dental plaque from 34 prehistoric European skeletons, they found that the transition from a hunter–gatherer diet to one based on farming was associated with a shift in the oral microbiota, with hunter–gatherers having fewer taxa that are associated with tooth decay (cariogenic bacteria) and periodontal disease. This shift was potentially

[Nat Genet.](#) Author manuscript; available in PMC 2014 Apr 23.

PMCID: PMC3996550

EMSID: EMS57665

Published in final edited form as:

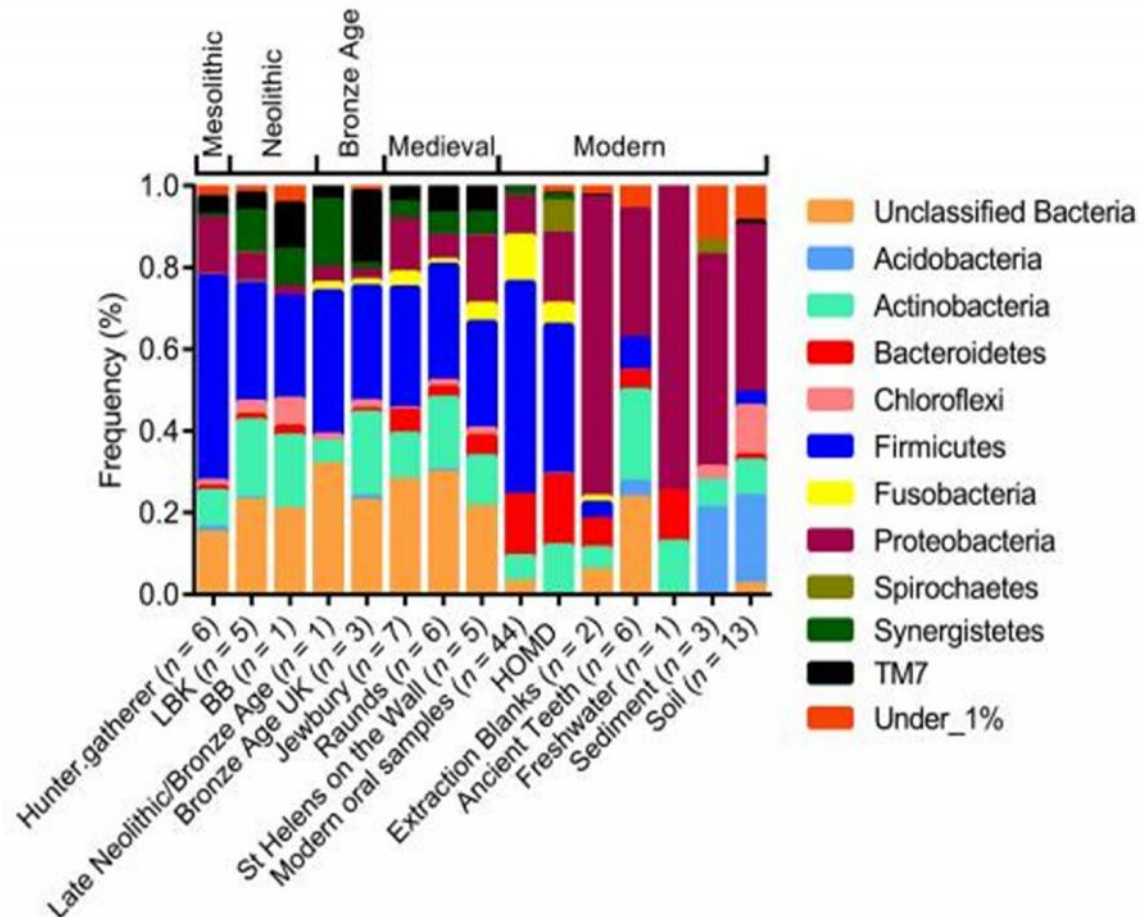
PMID: [23416520](#)

[Nat Genet. 2013 Apr; 45\(4\): 450–455e1.](#)

Published online 2013 Feb 17. doi: [10.1038/ng.2536](#)

Sequencing ancient calcified dental plaque shows changes in oral microbiota with dietary shifts of the Neolithic and Industrial revolutions

[Christina J Adler](#),^{1,2} [Keith Dobney](#),³ [Laura S Weyrich](#),¹ [John Kaidonis](#),⁴ [Alan W Walker](#),⁵ [Wolfgang Haak](#),¹ [Corey JA Bradshaw](#),^{6,7} [Grant Townsend](#),⁴ [Arkadiusz Sołtysiak](#),⁸ [Kurt W Alt](#),⁹ [Julian Parkhill](#),⁵ and [Alan Cooper](#)¹



The composition of oral microbiota remained surprisingly constant between Neolithic and Medieval times, after which (the now ubiquitous) cariogenic bacteria became dominant, apparently during the Industrial Revolution. Modern oral microbiota are markedly less diverse than historic populations, which might be contributing to chronic oral (and other) disease in post-industrial lifestyles.

Research | [Open Access](#) | Published: 09 June 2016

Diet may influence the oral microbiome composition in cats

[Christina J. Adler](#) , [Richard Malik](#), [Gina V. Browne](#) & [Jacqueline M. Norris](#)

[Microbiome](#) **4**, Article number: 23 (2016) | [Cite this article](#)

3713 Accesses | **10** Citations | **13** Altmetric | [Metrics](#)

Abstract

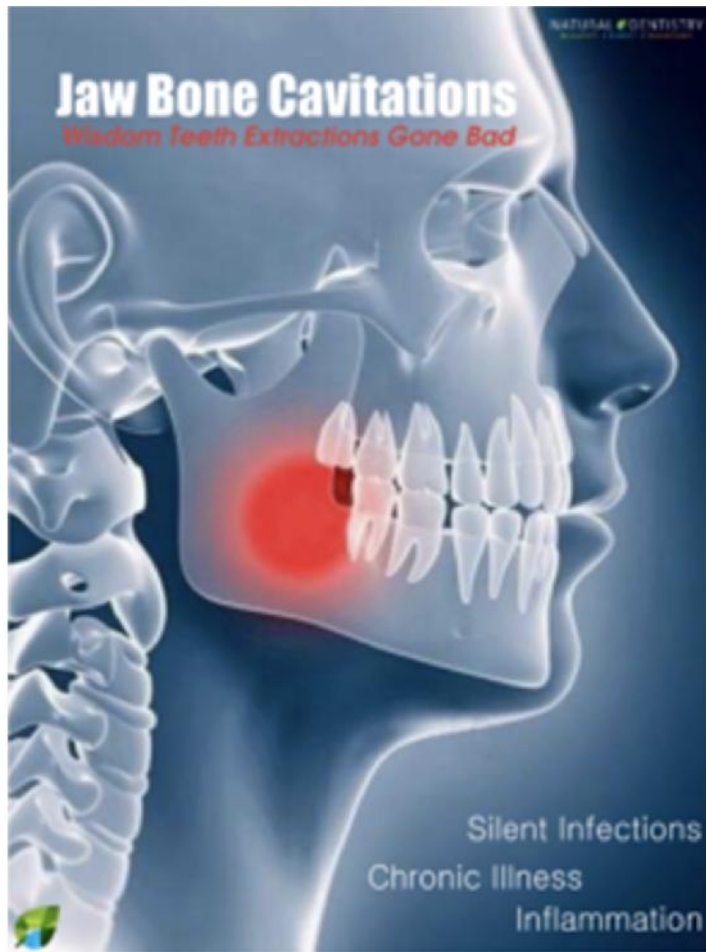
Background

Periodontal disease is highly prevalent amongst domestic cats, causing pain, gingival bleeding, reduced food intake, loss of teeth and possibly impacts on overall systemic health. Diet has been suggested to play a role in the development of periodontal disease in cats. There is a complete lack of information about how diet (composition and texture) affects the feline oral microbiome, the composition of which may influence oral health and

Factors Affecting Dysbiosis of the Oral Microbiome and Corresponding Dysregulation of the Immune System

1. Diet and Nutrition
2. **Toxicity/Endotoxin Production** (RCT, Cavitations, titanium implants)
3. Sleep/Airway Health (OSA- obstructive sleep apnea)
4. Harmful Oral Care Products (detergents, antimicrobials, chemicals)
5. Lack of Exercise
6. Stress (mental, emotional and physical)

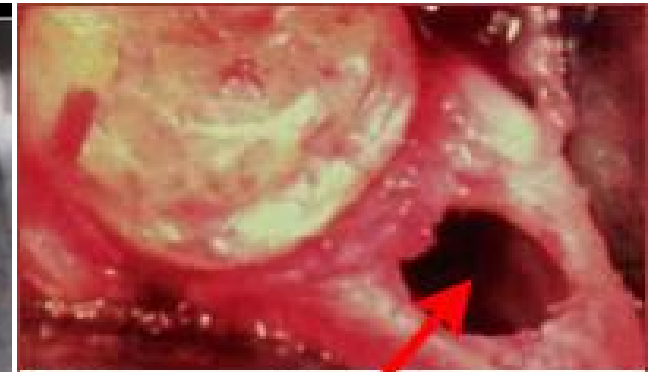
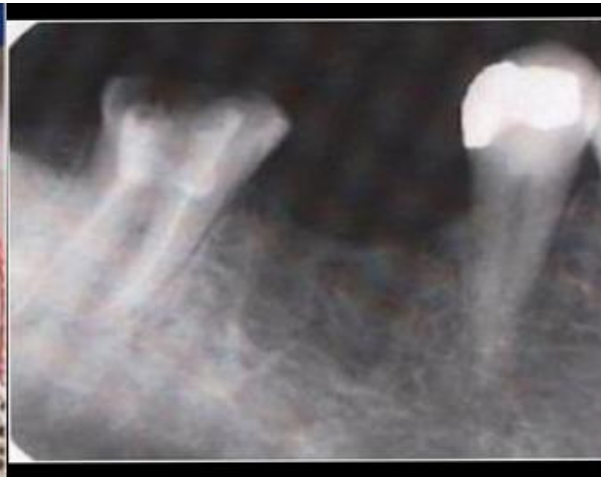
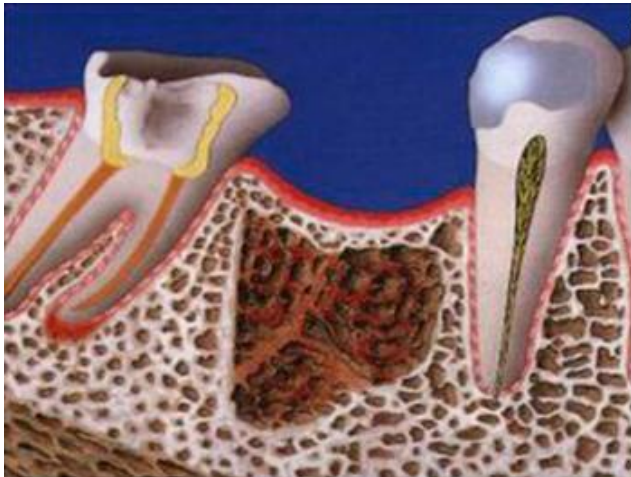
Jaw Cavitations: Stealth Infections



A cavitation is an **unhealed hole in the jawbone** caused by an extracted tooth [or a root canal or an injury to a tooth]. It is a **SILENT INFECTION, CHRONIC ILLNESS and CHONIC INFLAMMATION.**

Jaw Cavitations: Stealth Infections

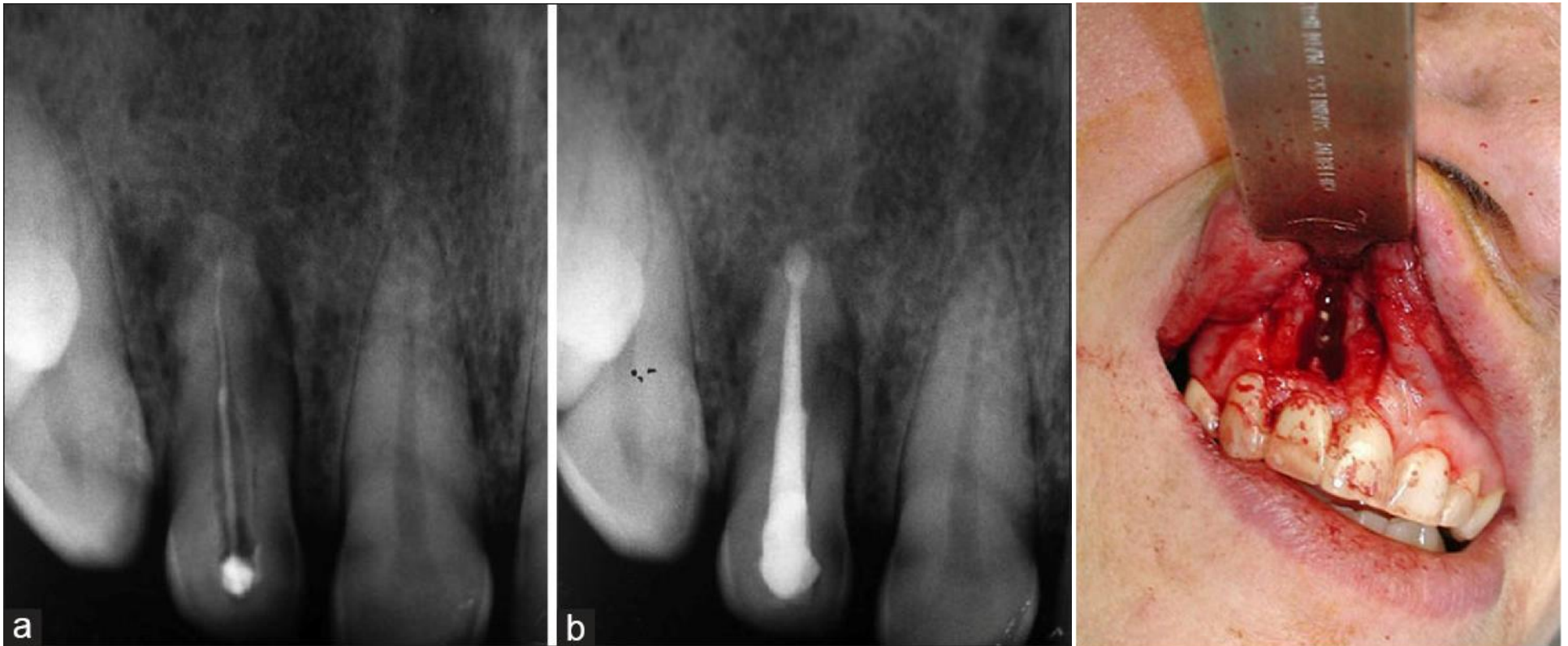
A cavitation formed from an dental extraction site.



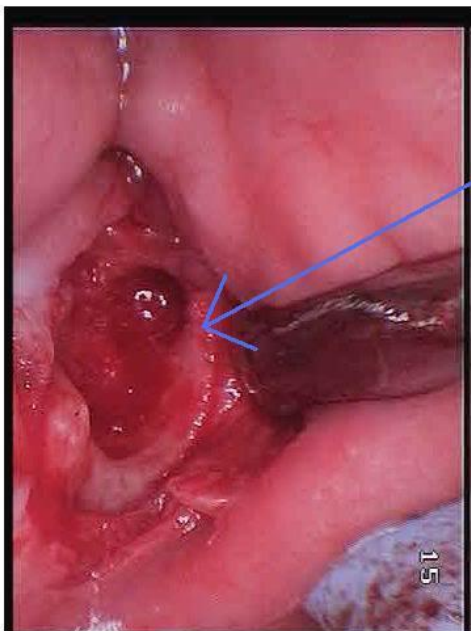
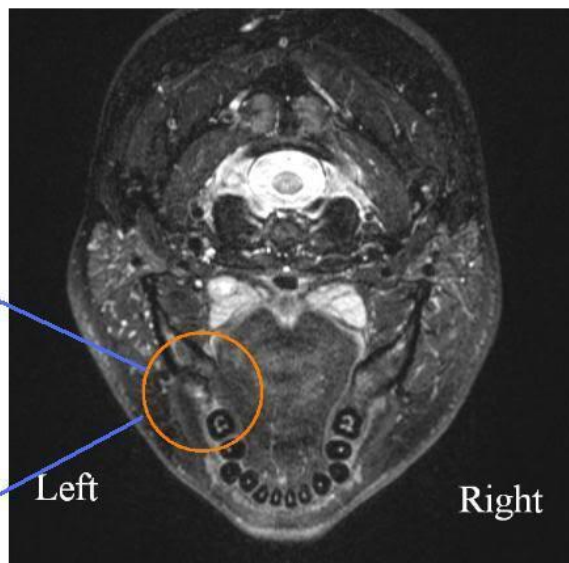
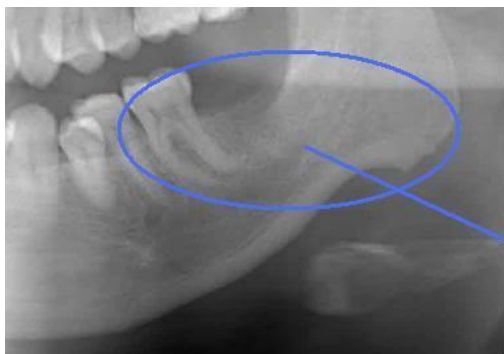
Hollow mandibular space (cavitation) seen in subpontic zone of old extraction site (bridge is removed).

Jaw Cavitations: Root Canal Infections

A cavitation formed from a failing root canaled tooth.

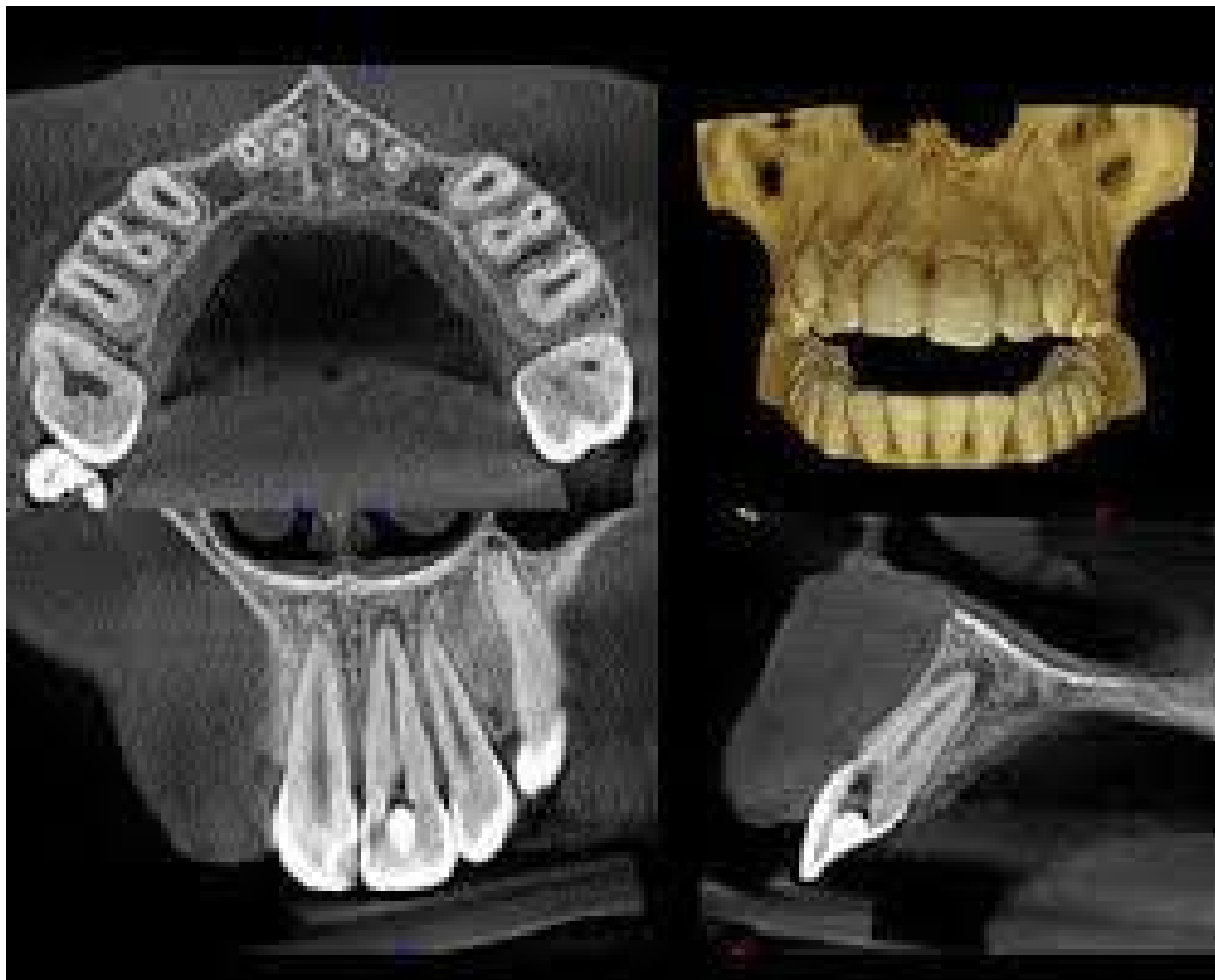


Jaw Cavitations: 2D Dental X-ray vs 3D Imaging



Massive infected hole in the bone missed by x-ray, large enough to stick your finger in. Showed up on MRI.

Conebeam Computerized Tomography (CBCT) is the diagnostic Gold Standard.





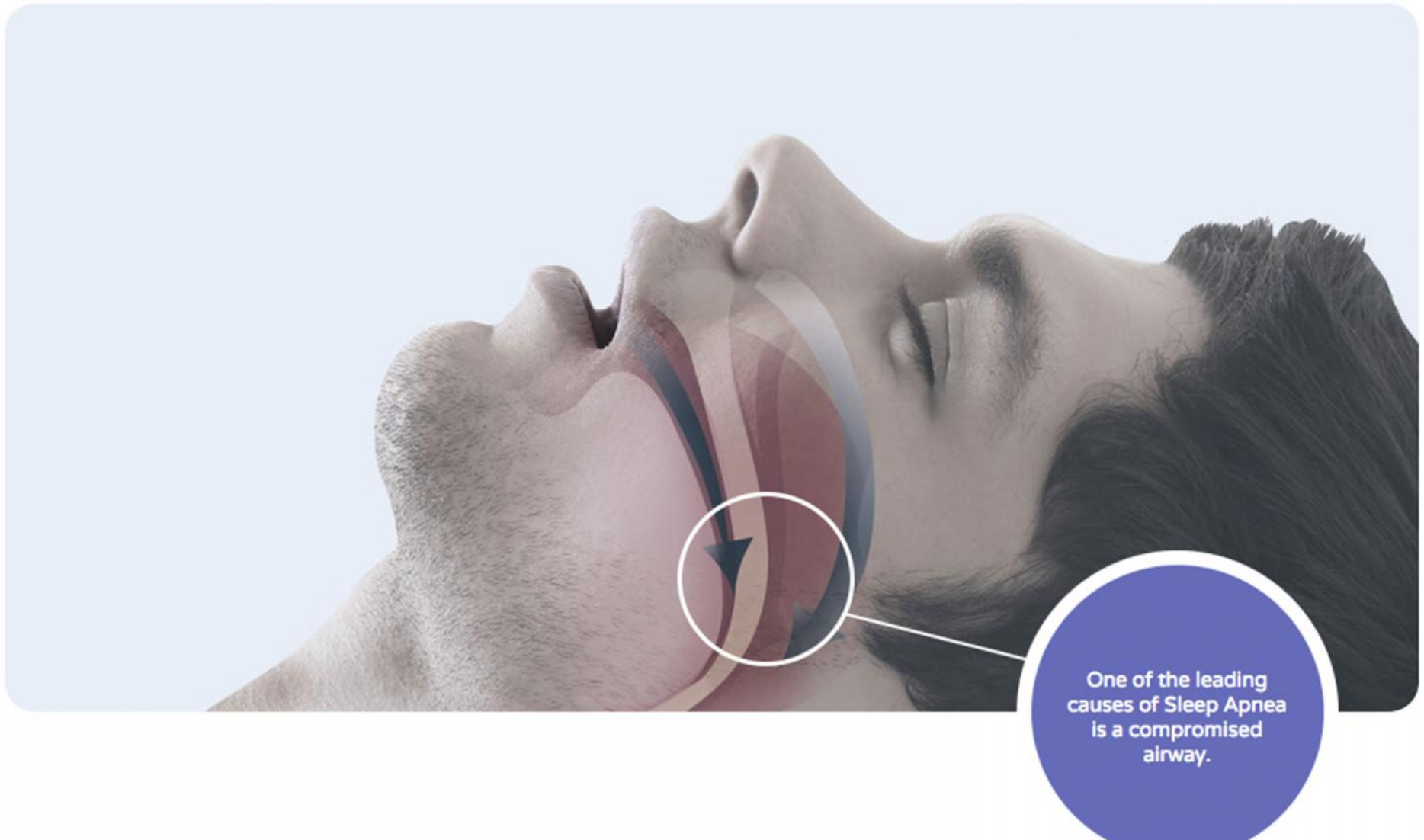
**ARE ROOT CANALS OR
HIDDEN JAW INFECTIONS
KEEPING YOUR LYME ALIVE?**

Dr. JhyDavidson.com

Factors Affecting Dysbiosis of the Oral Microbiome and Corresponding Dysregulation of the Immune System

1. Diet and Nutrition
2. Toxicity/Endotoxin Production (RCT, Cavitations, titanium implants)
3. **Sleep/Airway Health** (OSA- obstructive sleep apnea)
4. Harmful Oral Care Products (detergents, antimicrobials, chemicals)
5. Lack of Exercise
6. Stress (mental, emotional and physical)

The Dangerous Health Risk Of Obstructive Sleep Apnea





25%
of middle aged
men have
OSA.

THE DANGERS OF SLEEP APNEA

Diabetes, heart attack, stroke, Alzheimer's disease, memory loss, depression and weight gain are all risks of obstructive sleep apnea (OSA).



1 in 5
Adults have
mild OSA.

1 in 15
Adults have
severe OSA.



75%
of severe cases
are undiagnosed.

Obstructive sleep apnea increases risks of:



Heart Attack



Hypertension



Reflux disease



Diabetes



Impotence



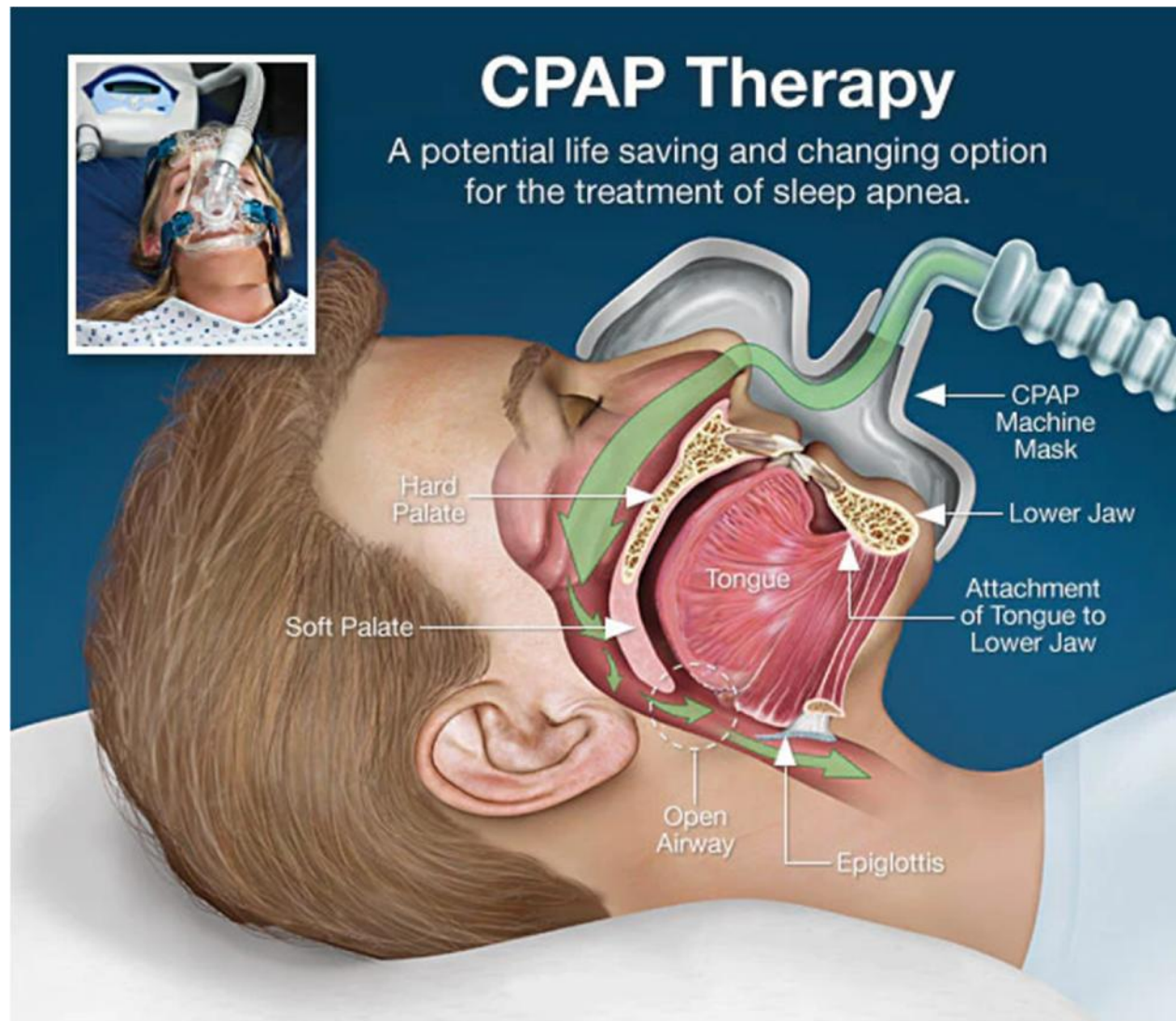
Motor vehicle
accidents



Congestive heart
failure

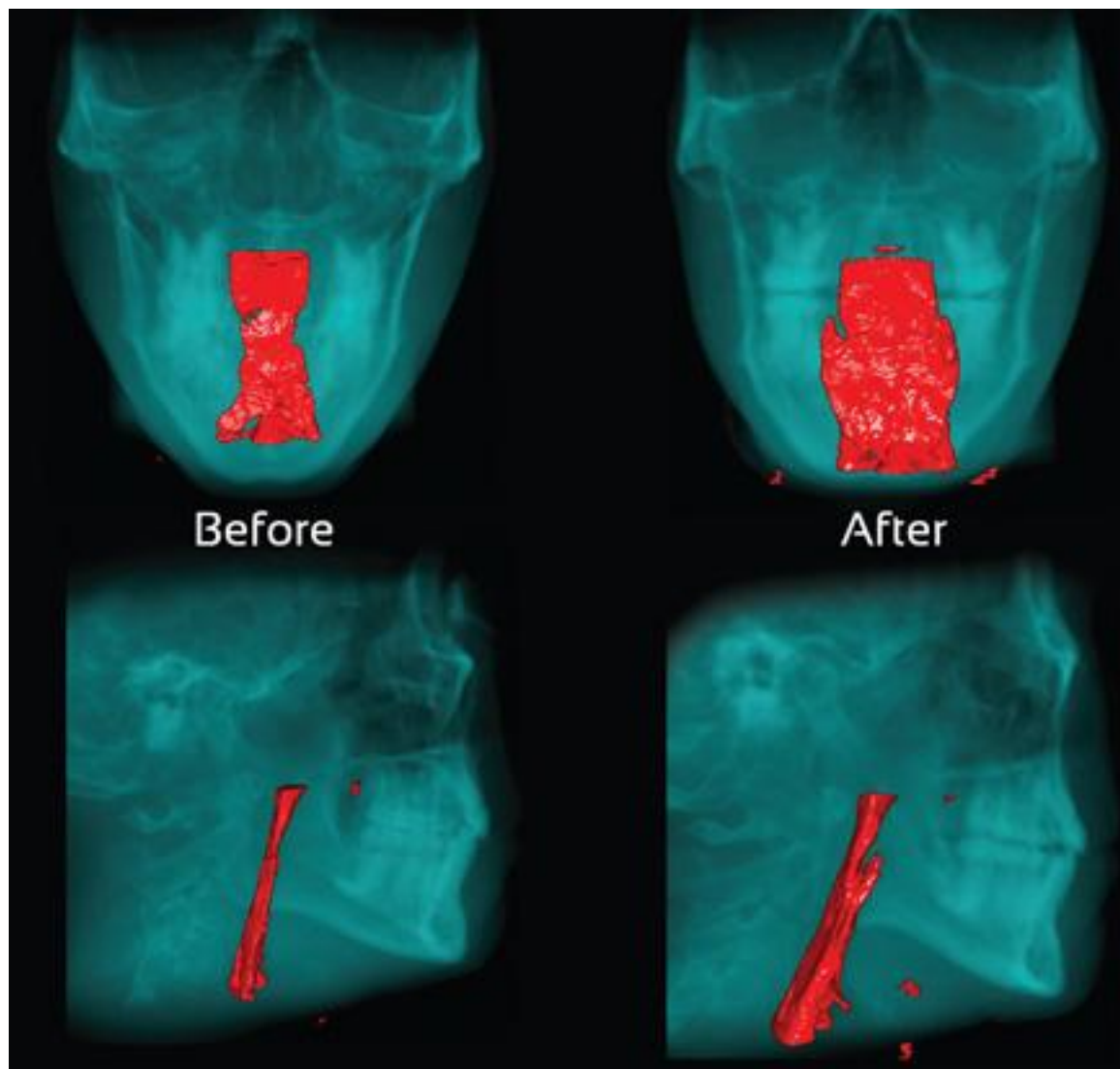


Stroke



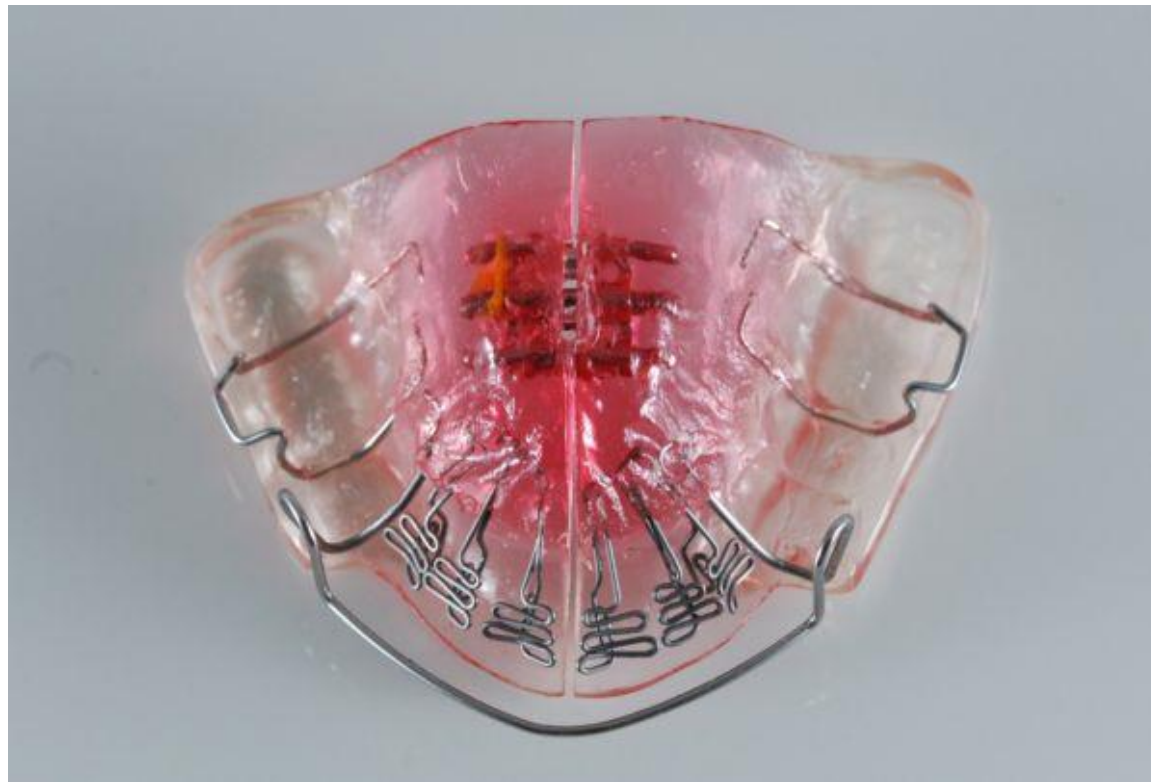


Obstructive sleep apnea 3D Conebeam Scan:



Airway Correction with the DNA Appliance:

The DNA appliance is an adjustable appliance by the patient at home every 3-5 days. This is NOT rapid palatal expansion (RPE), but steady arch development which **ACTIVATES STEM CELLS FOR BONE GROWTH** and **DOES NOT CAUSE INFLAMMATION**.



Obstructive sleep apnea increases risks of:



Obstructive sleep apnea in children:

Research has revealed that 80% of individuals who have Sleep Apnea are unaware. Apnea can also be present in children. Sleep Apnea in children is often misdiagnosed as ADHD. Excessive bed-wetting is also a finding in Children with Sleep Apnea.



Airway Health Analysis: Steps to an Accurate Diagnosis



Initial Consultation + Screening



Diagnostic Imaging



Sleep Assessment

Factors Affecting Dysbiosis of the Oral Microbiome and Corresponding Dysregulation of the Immune System

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6. Stress (mental, emotional and physical)

Why is there a “poison warning” on toothpaste? (hint: because it’s poison)

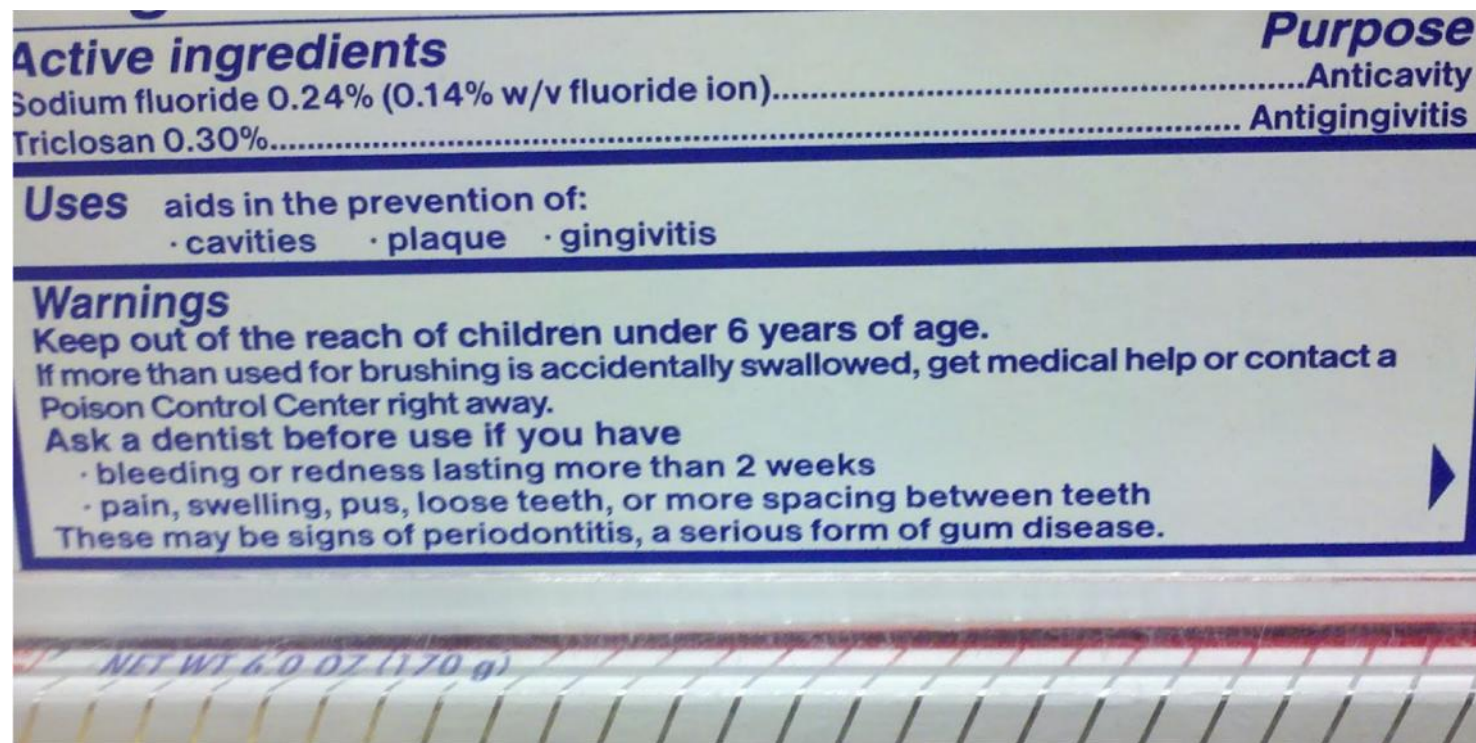


Did You Know?

Given the average weight of a six-year-old, a dose of 100mg, or 70 percent of a tube of toothpaste, at one sitting could be deadly.

Fluoride is a deadly poison and has no place in our water or our toothpaste. Use a non-fluoridated toothpaste. If you still think fluoride is good for teeth see this link - <http://goo.gl/Q5p9U>

Why is there a “poison warning” on toothpaste? (hint: because it’s poison)



THE TRUTH ABOUT FLUORIDE

*We are being overdosed on fluoride.
This “beneficial” drug has been linked to...*

- Lower IQ in children
- Learning disabilities
- Behavioral disorders
- Rapid aging
- Decrease in bone density and strength
- Metabolic dysfunction
- Autoimmune disease
- Cognitive decline
- Increased risk of cancer...



Chemical used by Colgate Total toothpaste to fight off gum disease is linked to cancer

- Colgate Total contains triclosan, which has been linked to cancer and growth malformations in animals.
- The toothpaste was approved by the FDA in 1997 - but the toxicology summary reveals the FDA used company-backed evidence to approve it.



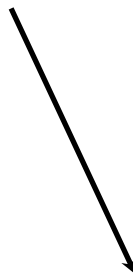
Truth in advertising?

Current approaches in Oral Care are not only ineffectual but harmful.



THE ORAL MICROBIOME & ORAL CARE

A Change in Assumptions



REVITIN IS TOOTHPASTE REINVENTED

The World's First **Prebiotic** Oral Care Formulation.

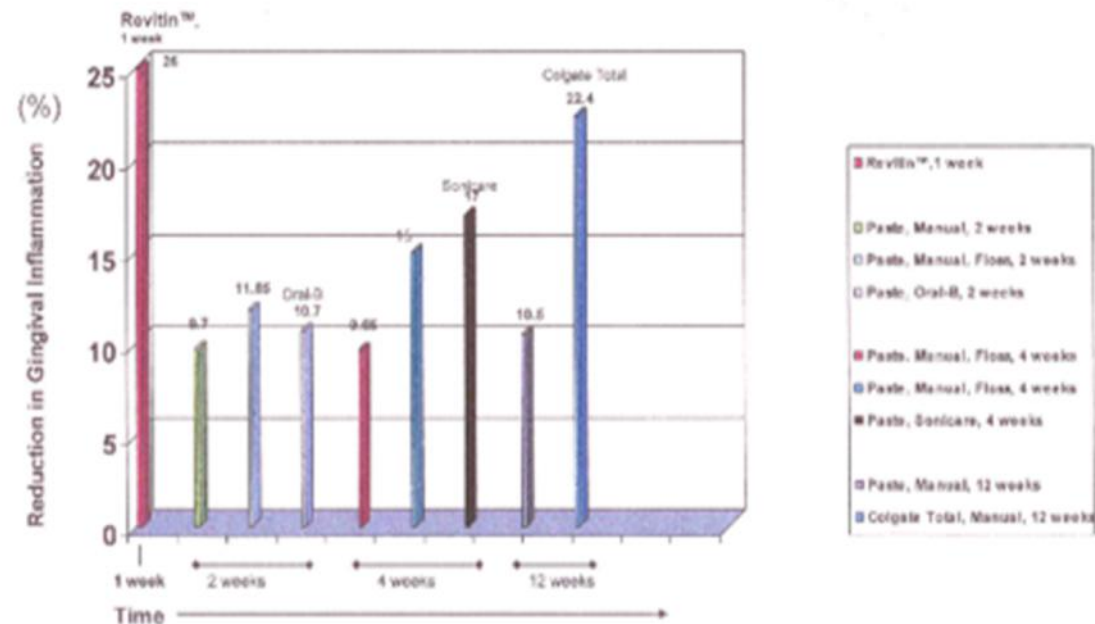


A biologically effective, **prebiotic** formulation promoting **homeostasis** (balance) of the naturally occurring oral microbiome.

Combines essential antioxidants and cell energy enhancers CoQ-10, Vitamin C, Vitamin D3, Vitamin E, Vitamin K2 (menaquinone 7) MSM, as well as a unique blend of microminerals, in a natural and organic base flavored with organic stevia.

Clinical Results:

Fig.1: Reduction in Gingival Inflammation vs. Various Oral Hygiene Therapeutic Modalities



Clinical Results:

An Evaluation of the Effectiveness of an Experimental Oral Therapy Paste (Revitin™ with NuPath® Bioactives) on Oral Soft Tissue Health

C. H. Pameijer ⁽¹⁾, N. Grande ⁽²⁾, G. Plotino ⁽²⁾, A. Butti ⁽²⁾, A. Lerda ⁽³⁾, V. Pasquali ⁽³⁾ ¹Professor Emeritus University of Connecticut; Hartford, CT; ²School of Dentistry, Catholic University of Rome, Italy. ³Private Practice, Rome, Italy

Background

Emerging science has linked the breakdown in oral health to a degenerating oral biofilm where the ecology of the microbial community taken as a collective, rather than as specific putative species, seems to be the best model for understanding the dynamics and thus for designing effective treatment. Standard detergent-based toothpastes attempt to eliminate the oral biofilm which precludes any valuable function that a healthy biofilm might perform in maintaining oral health. An experimental oral therapy paste designed to shift a degenerative oral biofilm towards an ecology compatible with oral health, has been proposed. An initial pilot study in humans showed a 25% reduction in gingival inflammation after 7 days of use ($p < 0.05$). This study seeks to evaluate the effects of this paste (R), on plaque index (PI), gingival index (GI), and bleeding index (BI) as compared to a standard detergent-based toothpaste (Crest® Whitening Expressions) as control (C).

Clinical Results:



42%

Reduction In
Gingival
Inflammation



46%

Reduction In
Plaque



72.5%

Reduction in
Bleeding

After fourteen days over a leading
toothpaste*

(*Crest Pro-Health Toothpaste)

Clinical Results:

Red, bleeding gums become pink, firm, and healthy.



Four Days, Revitin Only

Clinical Results:



3:19 pm

Boynton Family Dental Arts

9/27/2016

Patient Name: Lafave, Sean

Patient ID: 9913

Exam Date: 6/17/2016

PERIO CHART

MOB																		
PD	4	2	5	4	2	5	4	2	4	4	2	3	3	2	4	4	2	4
GM		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAL	4	2	5	5	3	6	5	3	5	5	3	5	3	2	4	5	3	5
MGJ																		
Bcl																		
FG																		
Ling																		
PD	4	3	5	5	3	4	4	3	4	3	3	3	4	3	4	4	3	5
GM																		
CAL	4	3	5	5	4	5	3	5	4	3	4	4	3	3	2	4	4	3
MGJ																		
Tooth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		

MOB																		
PD	4	4	6	6	3	4	4	3	5	2	4	4	2	3	2	2	2	2
GM																		
CAL	4	4	6	6	3	4	4	3	5	2	4	4	2	3	2	2	2	2
MGJ																		
Ling																		
PD	4	3	5	4	3	5	4	3	4	4	3	4	4	3	3	4	4	3
GM																		
CAL	4	3	5	5	4	6	4	3	4	5	4	3	4	4	3	4	4	3
MGJ																		
Tooth	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17		

Summary Information

Date	Bleeding Teeth Sites	Suppuration Teeth Sites	Furcation Teeth Sites	Mobility Teeth Sites	PD > Alert Teeth Sites	CAL < 0 Teeth Sites	CAL 1-3 Teeth Sites	CAL 4-5 Teeth Sites	CAL 6+ Teeth Sites
6/17/2016	23 64	0 0	0 0	0 0	12 23	0 0	26 61	26 96	7 11

Before Revitin use.

3:18 pm Boynton Family Dental Arts 9/27/2016

Patient Name: Lafave, Sean
Patient ID: 9913
Exam Date: 9/27/2016

PERIO CHART

MOB																		
PD	4	2	4	4	2	4	3	3	2	3	3	2	3	3	2	3	3	2
GM		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CAL	4	2	4	5	3	5	5	3	4	4	3	4	4	3	2	3	3	2
MGJ																		
Bcl																		
FG																		
Ling																		
PD	4	3	4	4	3	4	3	3	3	3	2	3	3	3	3	3	3	2
GM																		
CAL	4	3	4	4	5	4	3	3	3	3	2	3	3	3	3	3	3	2
MGJ																		
Tooth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		

MOB																		
PD	4	3	4	4	3	4	4	3	3	2	3	3	2	2	2	2	2	2
GM																		
CAL	4	3	4	4	3	4	4	3	3	2	3	4	4	3	3	2	4	4
MGJ																		
Ling																		
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Summary Information

Date	Bleeding Teeth Sites	Suppuration Teeth Sites	Furcation Teeth Sites	Mobility Teeth Sites	PD > Alert Teeth Sites	CAL < 0 Teeth Sites	CAL 1-3 Teeth Sites	CAL 4-5 Teeth Sites	CAL 6+ Teeth Sites
9/27/2016	2 3	0 0	0 0	0 0	5 6	0 0	27 37	25 75	5 6

3 MONTHS After Revitin use.

Factors Affecting Dysbiosis of the Oral Microbiome and Corresponding Dysregulation of the Immune System

1. Diet and Nutrition
2. Toxicity/Endotoxin Production (RCT, Cavitations, titanium implants)
3. Sleep/Airway Health (OSA- obstructive sleep apnea)
4. Harmful Oral Care Products (detergents, antimicrobials, chemicals)
5. **Lack of Exercise**
6. Stress (mental, emotional and physical)



Exercise Alters Our Microbiome. Is That One Reason It's So Good for Us?



EXERCISE & THE ORAL MICROBIOME



In particular, during exercise, researchers noted widespread increases in certain microbes that can help to produce substances called short-chain fatty acids. These fatty acids are believed to aid in reducing inflammation.

Factors Affecting Dysbiosis of the Oral Microbiome and Corresponding Dysregulation of the Immune System

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6. **Stress** (mental, emotional and physical)

STRESS & THE ORAL MICROBIOME



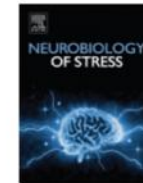
stressmanagementtips



STRESS & THE ORAL MICROBIOME



Neurobiology of Stress
Volume 7, December 2017, Pages 124-136



Stress & the gut-brain axis: Regulation by the microbiome

Jane A. Foster^a, Linda Rinaman^b  , John F. Cryan^{c, d}

The routes of communication between the microbiota and brain are slowly being unravelled, and include the [vagus nerve](#), [gut hormone](#) signaling, the immune system, [tryptophan](#) metabolism, and microbial metabolites such as [short chain fatty acids](#).

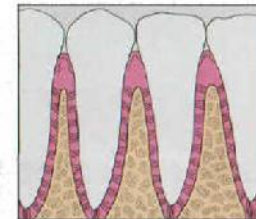
Abstract

The importance of the gut–brain axis in regulating stress-related responses has long been appreciated. More recently, the microbiota has emerged as a key player in the control of this axis, especially during conditions of stress provoked by real or perceived homeostatic challenge.

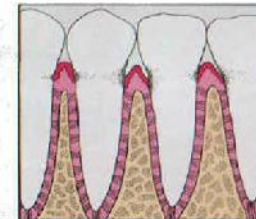
3 ALARMING STATISTICS IN ORAL HEALTH:

1. 80% of Adults Over 35 Have Some Form of Gum Disease.
2. The Link Between Gum Disease To Systemic Illness is Well Established.
3. Past Approaches (i.e., Antibiotics and Antimicrobials) Have Been Shown to Be Both Ineffectual and Harmful.

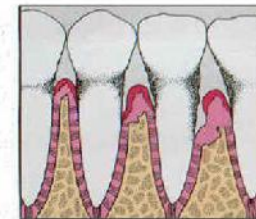
1. Normal, Healthy Gingiva (Gums)
Healthy gums and bone anchor teeth firmly in place.



2. Gingivitis
Plaque and its byproducts irritate the gums, making them tender, inflamed, and likely to bleed.



3. Periodontitis
Unremoved, plaque hardens into calculus (tartar). As plaque and calculus continue to build up, the gums begin to recede (pull away) from the teeth, and pockets form between the teeth and gums.



4. Advanced Periodontitis
The gums recede farther, destroying more bone and the periodontal ligament. Teeth—even healthy teeth—may become loose and need to be extracted.



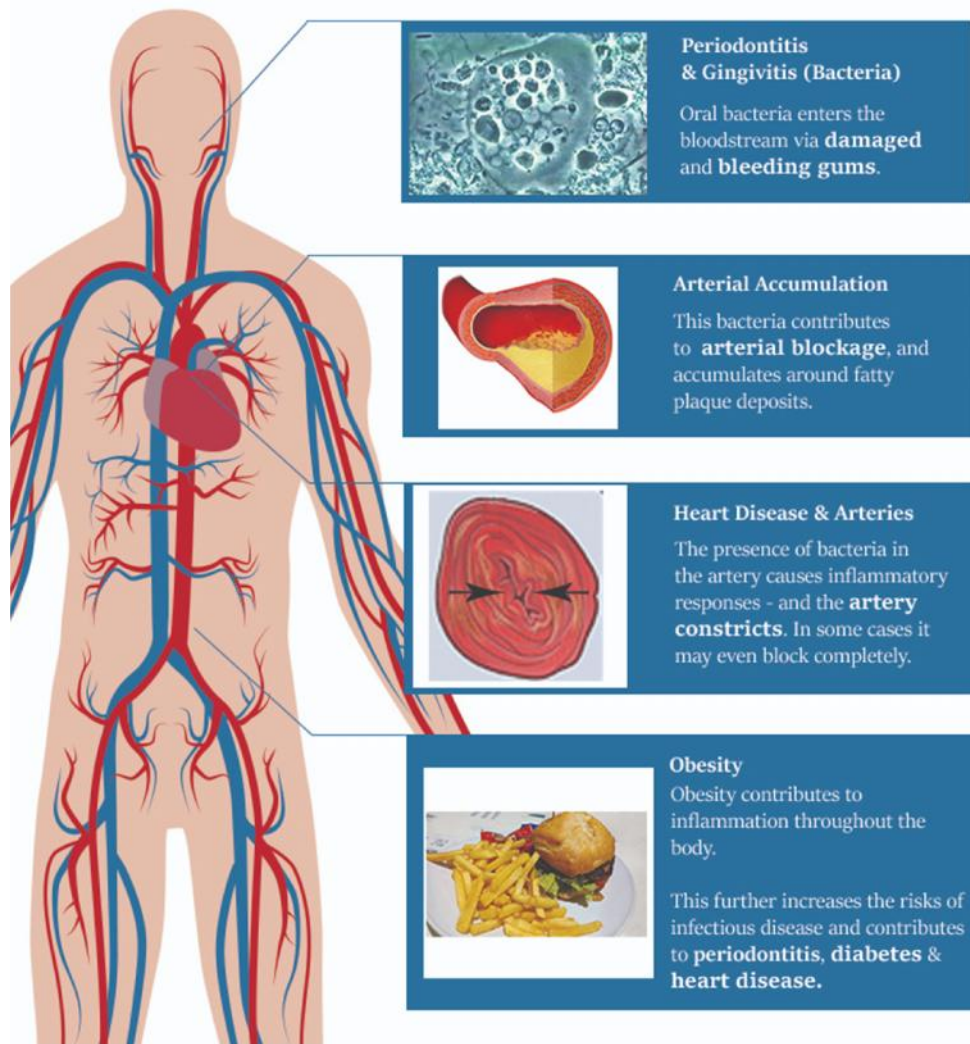
The high cost of gum disease

Gum disease

Severe gum disease is not just bad for your breath – it's bad for your wallet, too. A study by Japanese researchers found that untreated periodontal disease is associated with increased health care costs — and not just in dental care, but in the amount you will pay for hospital care, too.

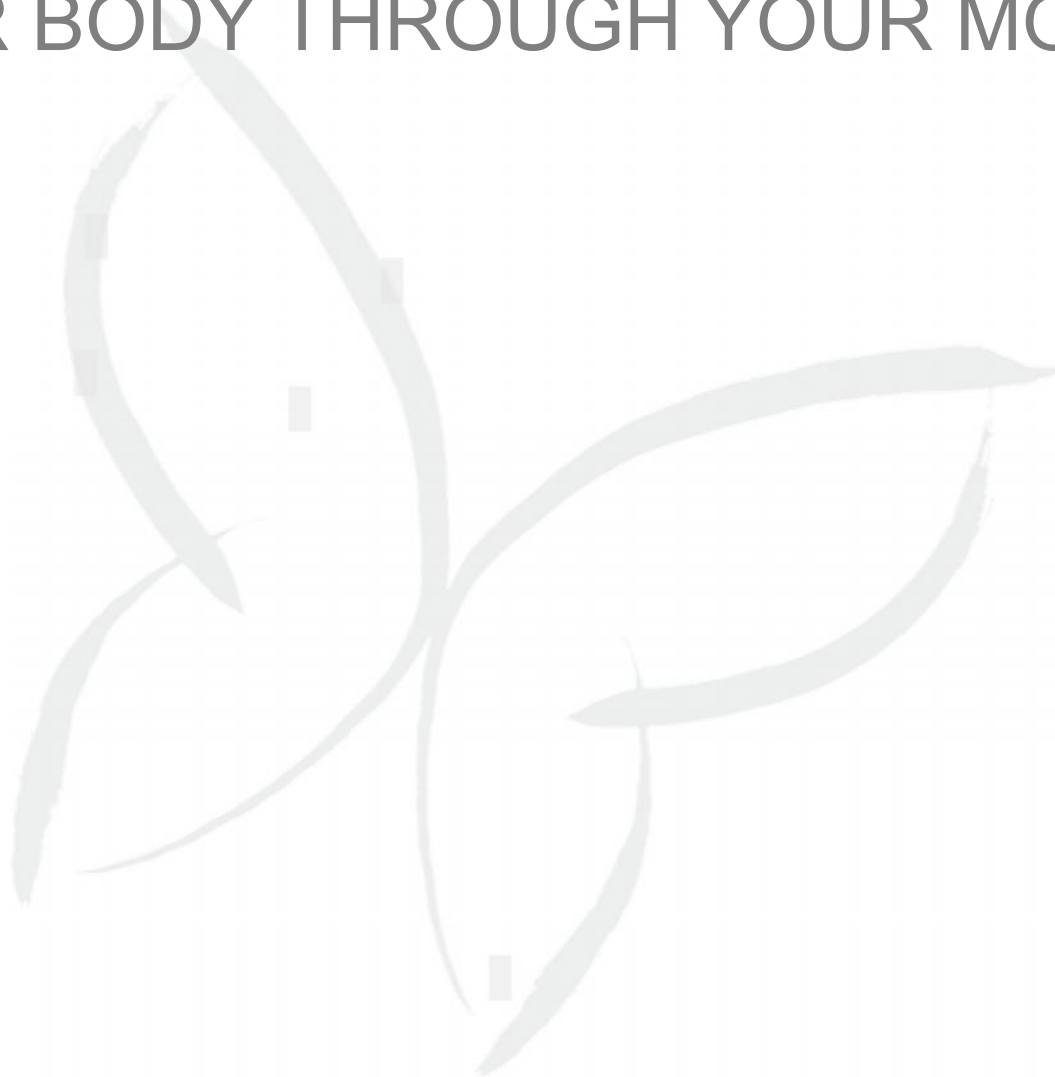
Researchers in Japan surveyed the health insurance claims from the health and dental examinations of more than 4,200 civil officers between the ages of 40 and 59. They divided the group into three categories of moderate, severe, and no gum disease and followed their medical and dental costs for more than three years.

At the conclusion of the study, they found that healthcare costs were 21 percent higher for those with severe gum disease as compared to those without gum disease. Men in particular who were categorized as having advanced gum disease had annual hospital costs that were 75 percent higher than those who had none. And for both men and women, those with severe periodontitis were also more likely to be admitted to the hospital.



Improving oral health reduces health care costs for the most costly systemic diseases: cardiovascular diseases, diabetes, and cerebrovascular diseases

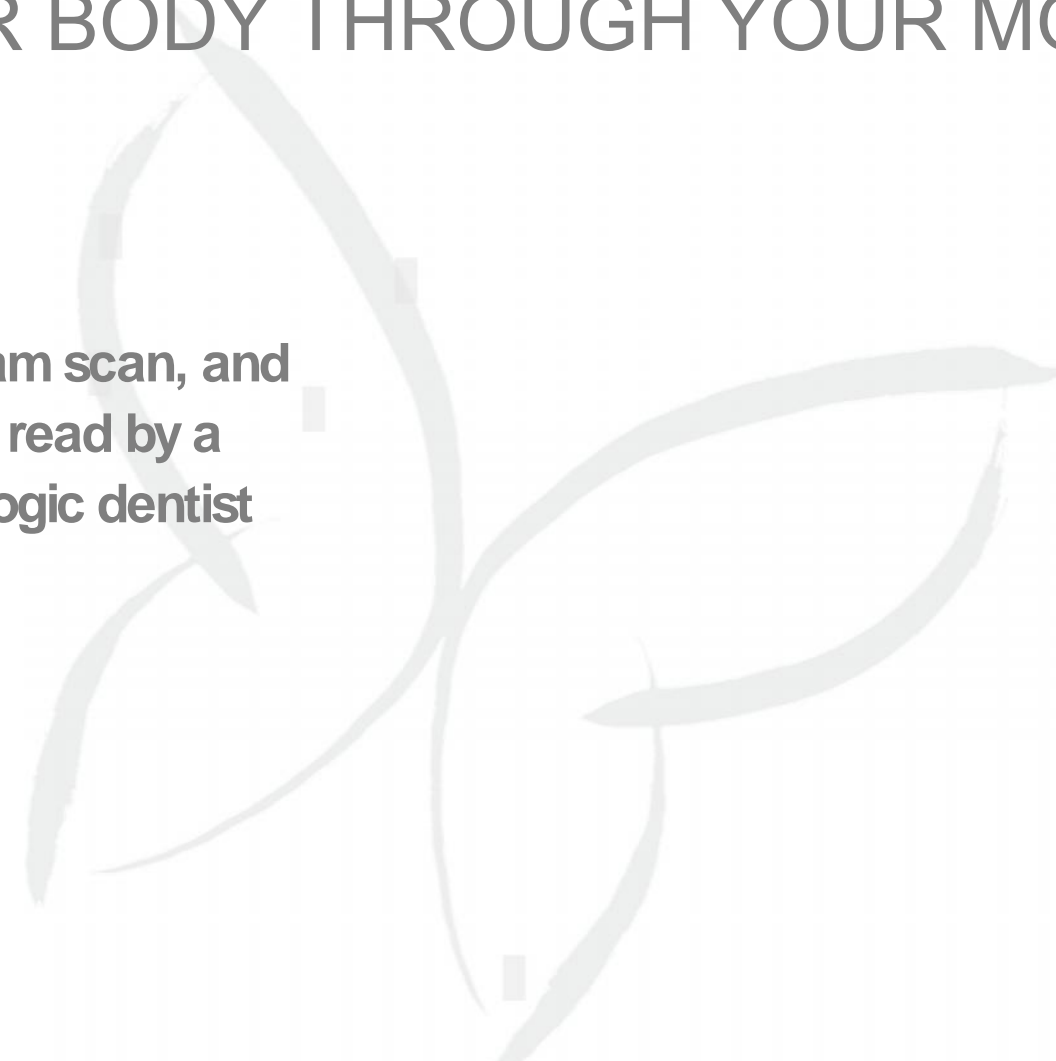
5 STEPS YOU CAN TAKE TO BIOHACK YOUR BODY THROUGH YOUR MOUTH



5 STEPS YOU CAN TAKE TO BIOHACK YOUR BODY THROUGH YOUR MOUTH

1

**Get a conebeam scan, and
sleep study read by a
qualified biologic dentist**



5 STEPS YOU CAN TAKE TO BIOHACK YOUR BODY THROUGH YOUR MOUTH

1

Get a conebeam scan, and
sleep study read by a
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2

Remove infected root
canals, toxic, non-biologic
fillings and treat jaw
cavitations

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4

Support your immune
system before, during and
after dental treatments

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cavitations

3

Treat any airway
health deficiency

5

Avoid harsh natural or
chemical-containing toothpaste
and mouthwash

4

Support your immune
system before, during and
after dental treatments

healthy nutrition=healthy oral microbiome=healthy immunity

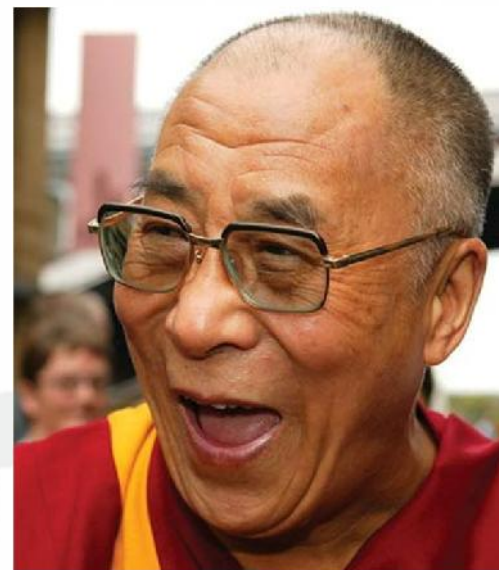
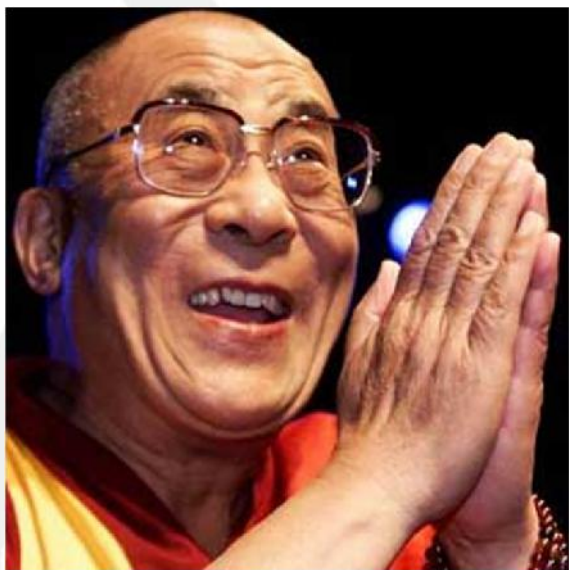


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TWITTER: @DRGERRYCURATOLA

THANK YOU!



“Smile if you want a smile from another face.”

– Dalai Lama