

# Healthy Gut, Happy Teeth: Secrets of Oral Wellness

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Myofunctional Therapy

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# Barbara Kempkes Tritz

- Barbara Tritz RDH, BS, MSB, HIAMOT practices biological dental hygiene in the office of Green City Dental in Edmonds, WA.
- She is the owner of Washington Oral Wellness in Kirkland, WA where she is a practicing orofacial myofunctional therapist.
- She completed her biological dental hygiene accreditation through the International Academy of Oral Medicine and Toxicology, and dental hygiene laser certification from the Academy of Laser Dentistry.
- Barbara's passion for oral health and total body wellness led to creating the website: Queen of Dental Hygiene.net.
- She was awarded the 2019 Hufriedy-ADHA Master Clinician Award at the annual ADHA Conference in Louisville, KY.
- Barbara can be contacted at [barbaratritz@gmail.com](mailto:barbaratritz@gmail.com).



# Disclosure:

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**I own and operate Washington Oral Wellness where I teach breathing retraining and orofacial myofunctional therapy.**

**I work as a biological dental hygienist in the office of Green City Dental in Edmonds, Washington.**

**I am a member of the International Academy of Oral Medicine and Toxicology. I am chair of the biological dental hygiene committee.**

**Website: [QueenofDentalHygiene.net](http://QueenofDentalHygiene.net)**



# Healthy Gut Happy Teeth: Secrets of Oral Wellness

- Statistics
- Biological Dentistry and Dental Hygiene
- History
- Why We Get Cavities and Periodontal Disease
  - Host response
  - Microbes
  - Nutrition
- Defeat Disease: Road Map to Success
- Goals





# Are we failing our patients?







# World Dental Federation Tooth Decay Statistics

- 2.3 billion people suffer from tooth decay (dental caries) of permanent teeth
- 530 million children suffer from tooth decay of primary teeth
- Untreated tooth decay (dental caries) impacting **almost half of the world's population** (44%)
- Most prevalent of all the 291 conditions included in the Global Burden of Disease Study.”





# Gum Disease

- Gum (periodontal) disease is among humanity's most common diseases, affecting up to 50% of the global population.
- Severe gum (periodontal) disease, which may result in tooth loss, affects 10% of the global population.

Key facts about oral health | FDI

*Key facts about oral health | FDI (2021). Available at: <https://www.fdiworldddental.org/key-facts-about-oral-health> (Accessed: 31 July 2021).*



# The Oral-Systemic Links

- Depression  
published March 2016
- Irritable Bowel Disease  
published March 2020
- Erectile dysfunction  
published February 2019
- Cardiovascular diseases:
  - Heart attack  
published April 2016, February 2016
  - Stroke  
published 2016, 2012
  - Atherosclerosis  
published May 2016
- Vascular diseases  
Published 2006, 2010
- Alzheimer's disease  
published September 2015, January 2019
- Pancreatic Cancer  
published May-June 2014
- Breast Cancer  
published 2015
- Kidney Disease  
published February 2016
- Respiratory Infections  
published October 2014
- Esophageal cancer  
published January 2016
- HIV activation due to Periodontal Disease  
published 2014
- Prostate Disease  
published February 2015
- Rheumatoid Arthritis  
published 2013
- Diabetes  
published February 2015
- Stillbirth  
published 2010
- Preterm & Low Birth Weight  
published 2010
- Colorectal Cancer  
published February 2015
- Oral Cancer  
published 2012
- Stomach Ulcers  
published 2002
- Obesity  
published 2009
- Stomach Cancer  
published February 2016
- Diabetes  
published Oct/Dec 2014
- Lung Cancer  
published April 2016





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# Connection: Oral Spirochetes, Porphyromonas Gingivalis and Dementia

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- J Alzheimers Dis. 2016; 53(4): 1271–1276.
- Published online 2016 Aug 8. Prepublished online 2016 Jun 27. doi: 10.3233/JAD-160388
- Alzheimer's Disease: Assessing the Role of Spirochetes, Biofilms, the Immune System, and Amyloid- $\beta$  with Regard to Potential Treatment and Prevention
- Herbert B. Allen\*
- \_\_\_\_\_
- Sci Adv. 2019 Jan; 5(1): eaau3333.
- Published online 2019 Jan 23. doi: 10.1126/sciadv.aau3333 PMCID: PMC6357742
- PMID: 30746447
- ***Porphyromonas gingivalis* in Alzheimer's disease brains:** Evidence for disease causation and treatment with small-molecule inhibitors
- Oral infection of mice with *P. gingivalis* results in brain infection and induction of A $\beta$ <sub>1-42</sub>

# The Biological Way





# Biological Dental Care

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- A mindset that looks at the *cause* of the illness or disease and treats conservatively and safely in the least toxic way possible.
- The aim is to be minimally invasive, “maximally” preventive, and as natural as possible.
- \*\*\*Practice Prevention\*\*\*
- Identify Systemic Issues
- The well-being of the mouth influences the health and wellness of the entire body.





## History says:

**Prehistoric man had little decay**

**Minimal tartar build up**

**32 straight teeth**

**More diverse biofilm**

**Little chronic disease**

**Until 12,000 years ago**

- The recent roots of dental disease

*The recent roots of dental disease* (2021). Available at: [https://evolution.berkeley.edu/evolibrary/news/130301\\_plaque](https://evolution.berkeley.edu/evolibrary/news/130301_plaque) (Accessed: 4 June 2021).





**What has changed?**



NOT FOR INFANTS OR CHILDREN WITH GALACTOSEMIA

PER 100 CALORIES (5.3 FL OZ, PREPARED AS DIRECTED)

2.1 g	CARBOHYDRATE...	11.1 g	LINOLEIC ACID ..	10%
5.4 g	WATER .....	140 g		

MINERALS

300 IU	VITAMIN B <sub>6</sub> .....	63 mcg	BIOTIN .....	
60 IU	VITAMIN B <sub>12</sub> .....	0.26 mcg	VITAMIN C .....	
1.5 IU	NIACIN .....	1100 mcg	(ASCORBIC ACID) ..	
8 mcg	FOLIC ACID .....		CHOLINE .....	
100 mcg	FOLACIN .....	16 mcg	INOSITOL .....	
160 mcg	PANTOTHENIC ACID ..	470 mcg		

MINERALS

88 mg	ZINC .....	0.79 mg	SELENIUM .....	
59 mg	MANGANESE .....	5 mcg	SODIUM .....	
6 mg	COPPER .....	95 mcg	POTASSIUM .....	
1.9 mg	IODINE .....	9 mcg	CHLORIDE .....	


INGREDIENTS: CORN SYRUP, MILK PROTEIN ISOLATE, HIGH OLEIC SAFFLOWER OIL, SUGAR, SODIUM GALACTO-OLIGOSACCHARIDES, LESS THAN 2% OF: C. COHNII OIL, M. ALPINA OIL, BETA-CAROTENE, CALCIUM PHOSPHATE, POTASSIUM CHLORIDE, POTASSIUM CITRATE, SODIUM CITRATE, VITAMIN C, VITAMIN E, VITAMIN K, VITAMIN B<sub>6</sub>, VITAMIN B<sub>12</sub>, NIACIN, FOLIC ACID, FOLACIN, PANTOTHENIC ACID, Biotin, Vitamin C, Choline, Inositol, Zinc, Manganese, Copper, Iodine, Selenium, Sodium, Potassium, Chloride.

*Sugar, Sugar Everywhere!*



Baby, Baby, Oh Baby





# Orofacial Myofunctional Disorders

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**Malocclusion**

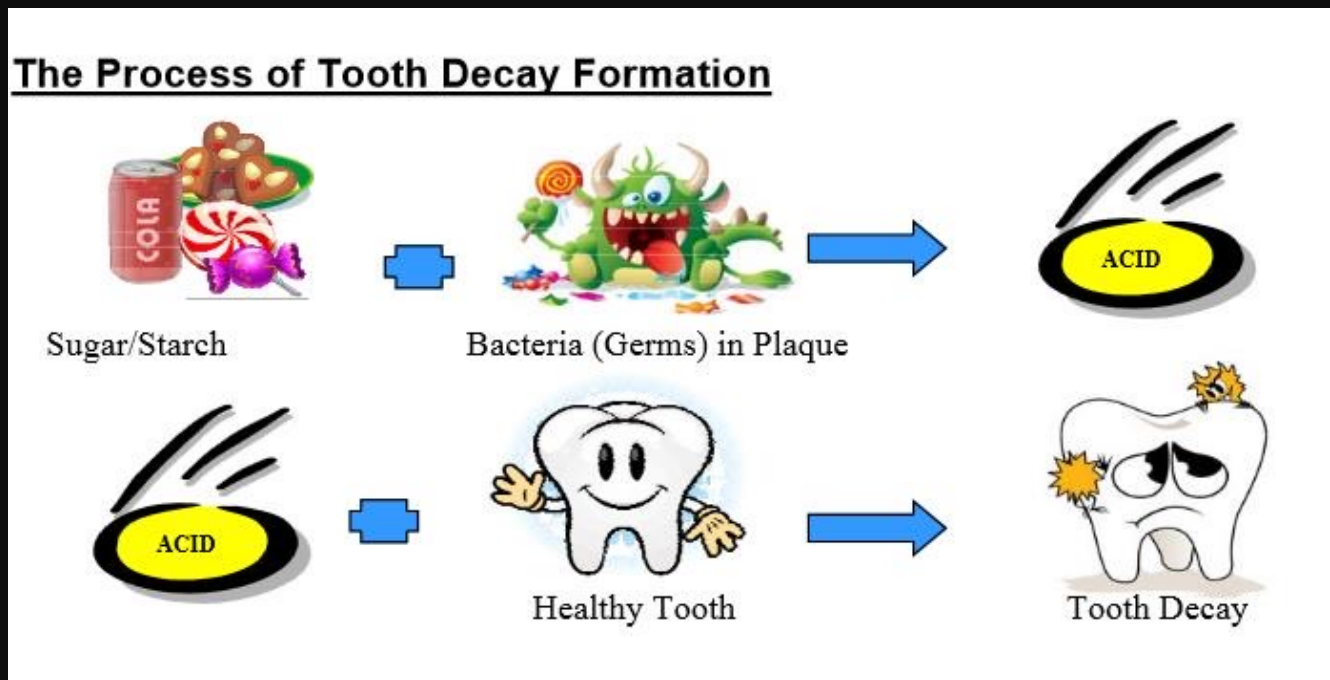


# Dental Caries

# Acidogenic Theory of Tooth Decay:

A theory describing the cause of dental caries, first postulated by Willoughby D. Miller in 1890, which stated that:

**non-specific bacteria in the plaque fermented refined carbohydrates to produce acid that demineralized tooth enamel.**



• [File:Process of tooth decay.jpg - Wikimedia Commons](#)  
This file is licensed under the [Creative Commons Attribution-Share Alike 4.0 International](#) license.



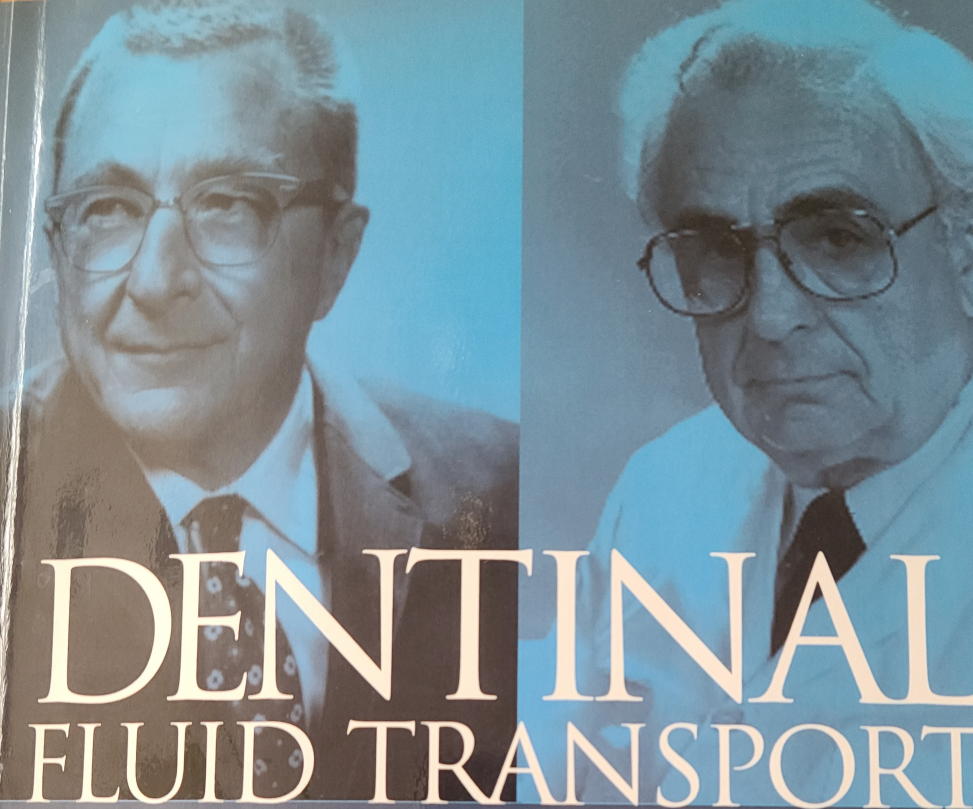


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**Tooth decay  
is about so  
much more  
than oral  
hygiene:**

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- Host susceptibility
- Microbes
- Food supply
- Gut Dysbiosis
- Myofunctional Disorders
- Oral Hygiene



**Dr. Ralph Steinman  
Dr. John Leonora**

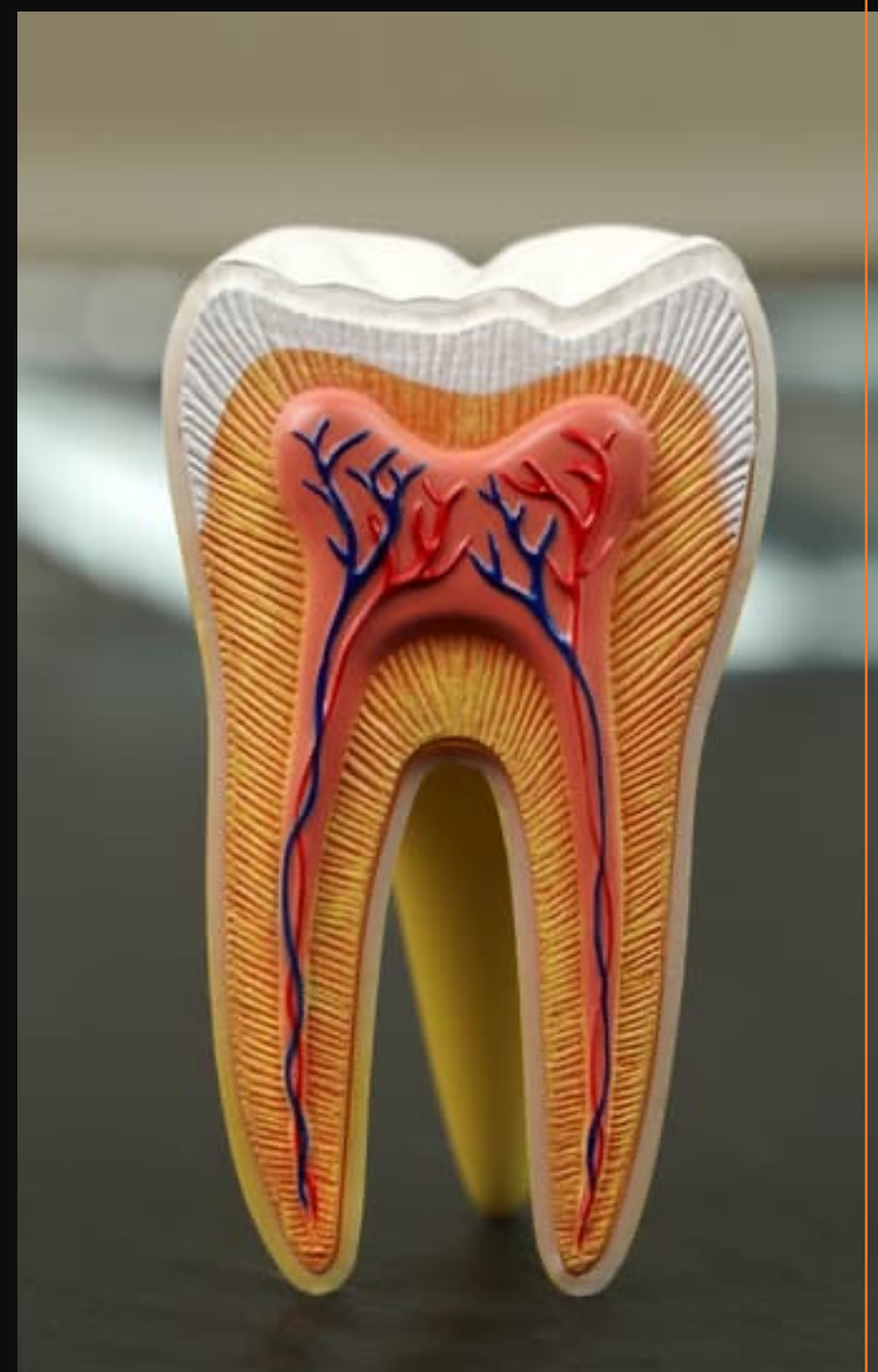
# **Dentinal Fluid Transport System**

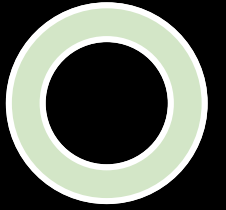


# Tooth Tubules:

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- Fluid flows from pulp chamber out to enamel.
- Nourishes teeth.
- When nutritional, heredity and systemic host factors are in good order then the entrance of bacterial products is prevented.

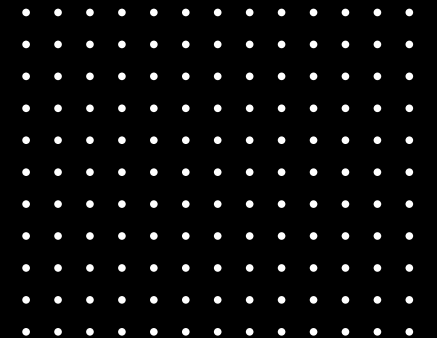





- Odontoblasts emit immune reaction to heal teeth.
- When they are properly nourished with fat-soluble vitamins (A, D3, K2, E) they can fight the bacteria creeping down the tooth tubules.
- Remineralize teeth
- Reverse decay

**Teeth have a  
Natural  
Defense  
System:**

**“Odontoblasts”**





# Sugar/Simple Carbohydrates

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Sugar stops the dental tubule  
fluid flow.

Diet high in sugar interferes with  
the good bacteria in the gut







**Every time you eat or  
drink you are either  
feeding disease or  
fighting  
it.**

~

**Heather Morgan MS**

# **Welcome to the World of Medical Dentistry**



# **Collaboration for Tooth Decay Care and Prevention**

# Decay Treatment Plan

02/20

4/21





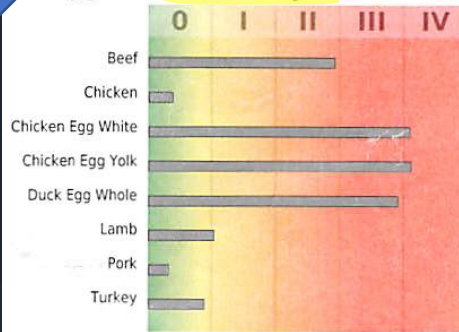
# Food Sensitivity Testing

Provider: Anastasia Jones, ND  
Patient: [REDACTED]  
Accession #: [REDACTED]  
Collected: [REDACTED]

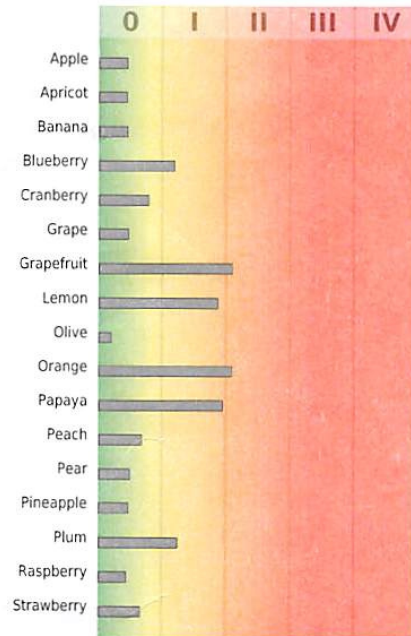
Sex: [REDACTED]  
Age: 9  
Received: 2021-04-26

Sample Type: Serum  
Date of Birth: 2012-01-09  
Completed: 2021-04-30  
CLIA #: 50D0965661  
CAP accredited

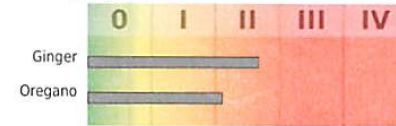
## Egg/Meat/Poultry



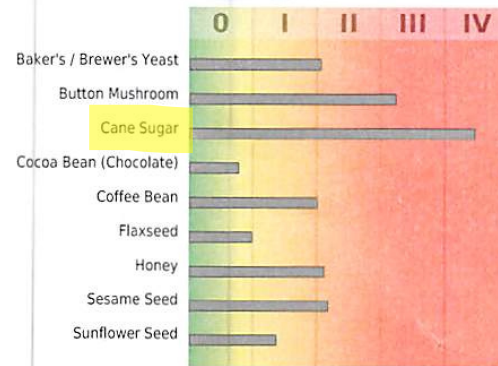
## Fruits



## Herbs/Spices



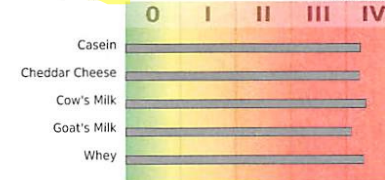
## Miscellaneous



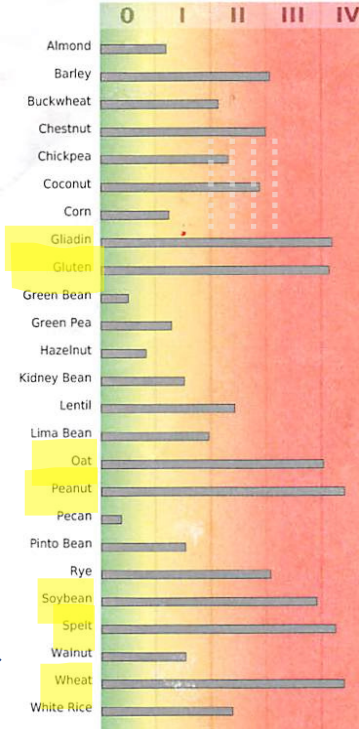
## Candida Screen



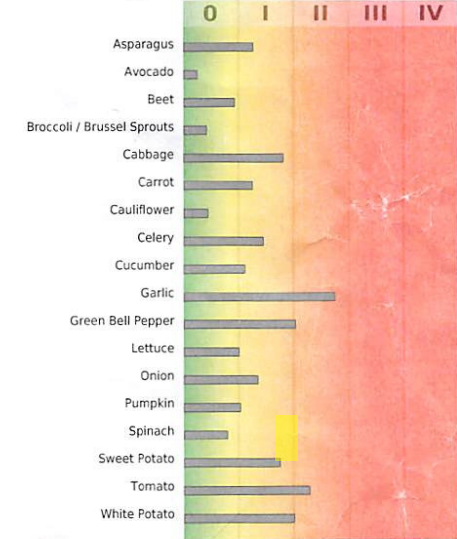
## Dairy



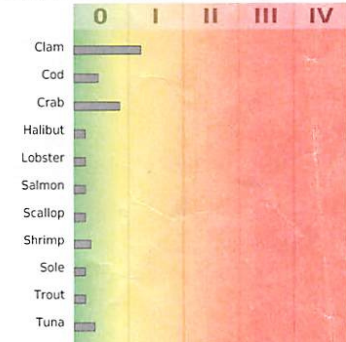
## Grains/Legumes/Nuts



## Vegetables



## Fish/Crustacea/Mollusk





# Blood Work

Test Name	In Range	Out Of Range	Reference Range	Lab
BILIRUBIN	NEGATIVE		NEGATIVE	
KETONES	NEGATIVE		NEGATIVE	
OCCULT BLOOD	NEGATIVE		NEGATIVE	
PROTEIN	NEGATIVE		NEGATIVE	
NITRITE	NEGATIVE		NEGATIVE	
LEUKOCYTE ESTERASE	NEGATIVE		NEGATIVE	
WBC	NONE SEEN		< OR = 5 /HPF	
RBC	NONE SEEN		< OR = 2 /HPF	
SQUAMOUS EPITHELIAL CELLS	NONE SEEN		< OR = 5 /HPF	
BACTERIA	NONE SEEN		NONE SEEN /HPF	
HYALINE CAST	NONE SEEN		NONE SEEN /LPF	
FERRITIN	28		14-79 ng/mL	NW
VITAMIN B12	453		250-1205 pg/mL	NW
ZINC, RBC	10.19		9.0-14.7 mg/L	SLI

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics. It has not been cleared or approved by the FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

## OMEGACHECK (R) EPA+DPA+DHA

Increasing blood levels of long-chain n-3 fatty acids are associated with a lower risk of sudden cardiac death (1). Based on the top (75th percentile) and bottom (25th percentile) quartiles of the CHL reference population, the following relative risk categories were established for OmegaCheck: A cut-off of  $\geq 5.5\%$  by wt defines a population at optimal relative risk, 3.8-5.4% by wt defines a population at moderate relative risk, and  $\leq 3.7\%$  by wt defines a population at high relative risk of sudden cardiac death. The totality of the scientific evidence demonstrates that when consumption of fish oils is limited to 3 g/day or less of EPA and DHA, there is no significant risk for increased bleeding time beyond the normal range. A daily dosage of 1 gram of EPA and DHA lowers the circulating triglycerides by about 7-10% within 2 to 3 weeks. (Reference: 1-Albert et al. NEJM. 2002; 346: 1113-1118). This test is performed by a Liquid Chromatography-Tandem Mass Spectrometry (LC/MS/MS) method. This test was developed and its performance characteristics determined by the Cleveland HeartLab, Inc. It has not been cleared or approved by the U.S. FDA. The Cleveland HeartLab, Inc. is regulated under Clinical Laboratory Improvement Amendments (CLIA) as qualified to perform high-complexity testing. This test is used for clinical purposes. It should not be regarded as investigational or for research.

ARACHIDONIC ACID/EPA				
RATIO	35.3		3.7-40.7	
OMEGA-6/OMEGA-3 RATIO		15.4 H	3.7-14.4	
OMEGA-3 TOTAL	2.9		% by wt	
EPA	0.3		0.2-2.3 % by wt	
DPA	1.0		0.8-1.8 % by wt	
DHA	1.6		1.4-5.1 % by wt	
OMEGA-6 TOTAL	44.8		% by wt	
Cleveland HeartLab measures a number of omega-6 fatty acids with AA and LA being the two most abundant forms reported.				
ARACHIDONIC ACID	10.6		8.6-15.6 % by wt	
LINOLEIC ACID		31.1 H	18.6-29.5 % by wt	

24M

## COMMENTS: AN UPDATE OR CORRECTION HAS BEEN MADE TO DOB

Test Name	In Range	Out Of Range	Reference Range	Lab
COMPREHENSIVE METABOLIC PANEL				NW
GLUCOSE	80		65-99 mg/dL	
Fasting reference interval				
UREA NITROGEN (BUN)	11		7-20 mg/dL	
CREATININE	0.49		0.20-0.73 mg/dL	
Patient is <18 years old. Unable to calculate eGFR.				
BUN/CREATININE RATIO	NOT APPLICABLE		6-22 (calc)	
SODIUM	138		135-146 mmol/L	
POTASSIUM	4.2		3.8-5.1 mmol/L	
CHLORIDE	105		98-110 mmol/L	
CARBON DIOXIDE	26		20-32 mmol/L	
CALCIUM	10.2		8.9-10.4 mg/dL	
PROTEIN, TOTAL	7.3		6.3-8.2 g/dL	
ALBUMIN	4.8		3.6-5.1 g/dL	
GLOBULIN	2.5		2.0-3.8 g/dL (calc)	
ALBUMIN/GLOBULIN RATIO	1.9		1.0-2.5 (calc)	
BILIRUBIN, TOTAL	0.4		0.2-0.8 mg/dL	
ALKALINE PHOSPHATASE		357 H	117-311 U/L	
AST	31		12-32 U/L	
ALT	14		8-24 U/L	
CBC (INCLUDES DIFF/PLT)				NW
WHITE BLOOD CELL COUNT	4.7		4.5-13.5 Thousand/uL	
RED BLOOD CELL COUNT	4.52		4.00-5.20 Million/uL	
HEMOGLOBIN	12.6		11.5-15.5 g/dL	
HEMATOCRIT	38.3		35.0-45.0 %	
MCV	84.7		77.0-95.0 fL	
MCH	27.9		25.0-33.0 pg	
MCHC	32.9		31.0-36.0 g/dL	
RDW	11.7		11.0-15.0 %	
PLATELET COUNT	340		140-400 Thousand/uL	
MPV	9.0		7.5-12.5 fL	
ABSOLUTE NEUTROPHILS	2336		1500-8000 cells/uL	
ABSOLUTE LYMPHOCYTES	2040		1500-6500 cells/uL	
ABSOLUTE MONOCYTES	268		200-900 cells/uL	
ABSOLUTE EOSINOPHILS	28		15-500 cells/uL	
ABSOLUTE BASOPHILS	28		0-200 cells/uL	
NEUTROPHILS	49.7		%	
LYMPHOCYTES	43.4		%	
MONOCYTES	5.7		%	
EOSINOPHILS	0.6		%	
BASOPHILS	0.6		%	
URINALYSIS, COMPLETE				NW
COLOR	YELLOW		YELLOW	
APPEARANCE	CLEAR		CLEAR	
SPECIFIC GRAVITY	1.004		1.001-1.035	
PH	7.0		5.0-8.0	
GLUCOSE	NEGATIVE		NEGATIVE	



# Omega 3

Critical for optimal health:

- Depression and anxiety
- Brain and eye health
- Metabolic syndrome
- Inflammation
- ADHA
- Cancer
- Asthma
- Fatty liver disease
- Menstrual pain
- Sleep
- Dementia



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**Alkaline  
Phosphatase**  
**357U/L H**  
  
**(117-311 U/L)**

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Enzyme that breaks down protein

Liver damaged then leaks ALP into blood stream

High levels indicate liver disease or bone disorders

# Vitamin D Deficiency

DOB: 01/09/2012    AGE: 9 Gender: F Phone: NG [REDACTED]	Requisition: 0007958 Lab Ref #: 6010534 Collected: 04/22/2021 / 14:52 PDT Received: 04/22/2021 / 21:56 PDT Reported: 04/23/2021 / 02:26 PDT	JONES, ANASTASIA D SAGE INTEGRATIVE MEDICINE CL 110 JAMES ST STE 103 EDMONDS, WA 98020-8430
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**COMMENTS:** AN UPDATE OR CORRECTION HAS BEEN MADE TO DOB

Endocrinology

Test Name	Result	Reference Range	
VITAMIN D,25-OH,TOTAL,IA	16 L	30-100 ng/mL	NW

Vitamin D Status      25-OH Vitamin D:

Deficiency:                      <20 ng/mL

Insufficiency:                20 - 29 ng/mL

Optimal:                        > or = 30 ng/mL

For 25-OH Vitamin D testing on patients on D2-supplementation and patients for whom quantitation of D2 and D3 fractions is required, the QuestAssureD(TM) 25-OH VIT D, (D2,D3), LC/MS/MS is recommended: order code 92888 (patients >2yrs).

Physician Comments:



# Vitamin D Deficiency: 16ng/ml (50 -80ng/ml)

- Acts as a hormone
- Every cell in body has vitamin D receptor
- Fights:
  - Infection
  - Bone health
  - Depression
  - Fatigue
  - Respiratory infections
  - Wound healing
  - Hair loss
  - Muscle pain
  - Tooth decay

[8 Signs and Symptoms of Vitamin D Deficiency \(healthline.com\)](https://www.healthline.com/health/vitamin-d-deficiency)

# Journal of Dental Research

- Vitamin D and Dental Caries in Children

- Show all authors

- [R.J. Schroth](#), [R. Rabbani](#), [G. Loewen](#), ...

- First Published November 9, 2015 Research Article [Find in PubMed](#)

- <https://doi.org/10.1177/0022034515616335>

- Abstract

The purpose of this study was to assess the relationship between vitamin D status and dental caries in Canadian school-aged children participating in the Canadian Health Measures Survey (CHMS). The CHMS was a national cross-sectional study involving physical assessments, laboratory analysis, and interviews. Analysis was restricted to data for 1,017 children 6 to 11 y of age. Outcome variables included the presence of caries and overall total caries score (dmft/DMFT index). Levels of 25-hydroxyvitamin D (25(OH)D) were measured from serum samples obtained from participants. Bivariate analysis, logistic regression for the presence of caries, and multiple linear regression for total caries scores were used. Significance was set at  $P \leq 0.05$ . Overall, 56.4% of children experienced caries, and the mean dmft/DMFT score was 2.47 (95% CI 2.09 to 2.84). The unadjusted odds of children with 25(OH)D levels  $\geq 75$  nmol/L having experienced caries was 0.57 (95% CI 0.39 to 0.82), while the odds for caries at the  $\geq 50$  nmol/L level was 0.56 (95% CI 0.39 to 0.89). After controlling for other covariates, backward logistic regression revealed **that the presence of caries was significantly associated with 25(OH) levels  $< 75$  nmol/L and  $< 50$  nmol/L**, lower household education, not brushing twice daily, and yearly visits to the dentist. Similarly, multiple linear regression revealed that total dmft/DMFT caries scores were also associated with 25(OH)D concentrations  $< 75$  nmol/L, not brushing twice daily, lower household education, and yearly visits to the dentist. Data from a cross-sectional, nationally representative sample of Canadian children suggest **that there is an association between caries and lower serum vitamin D. Improving children's vitamin D status may be an additional preventive consideration to lower the risk for caries.**

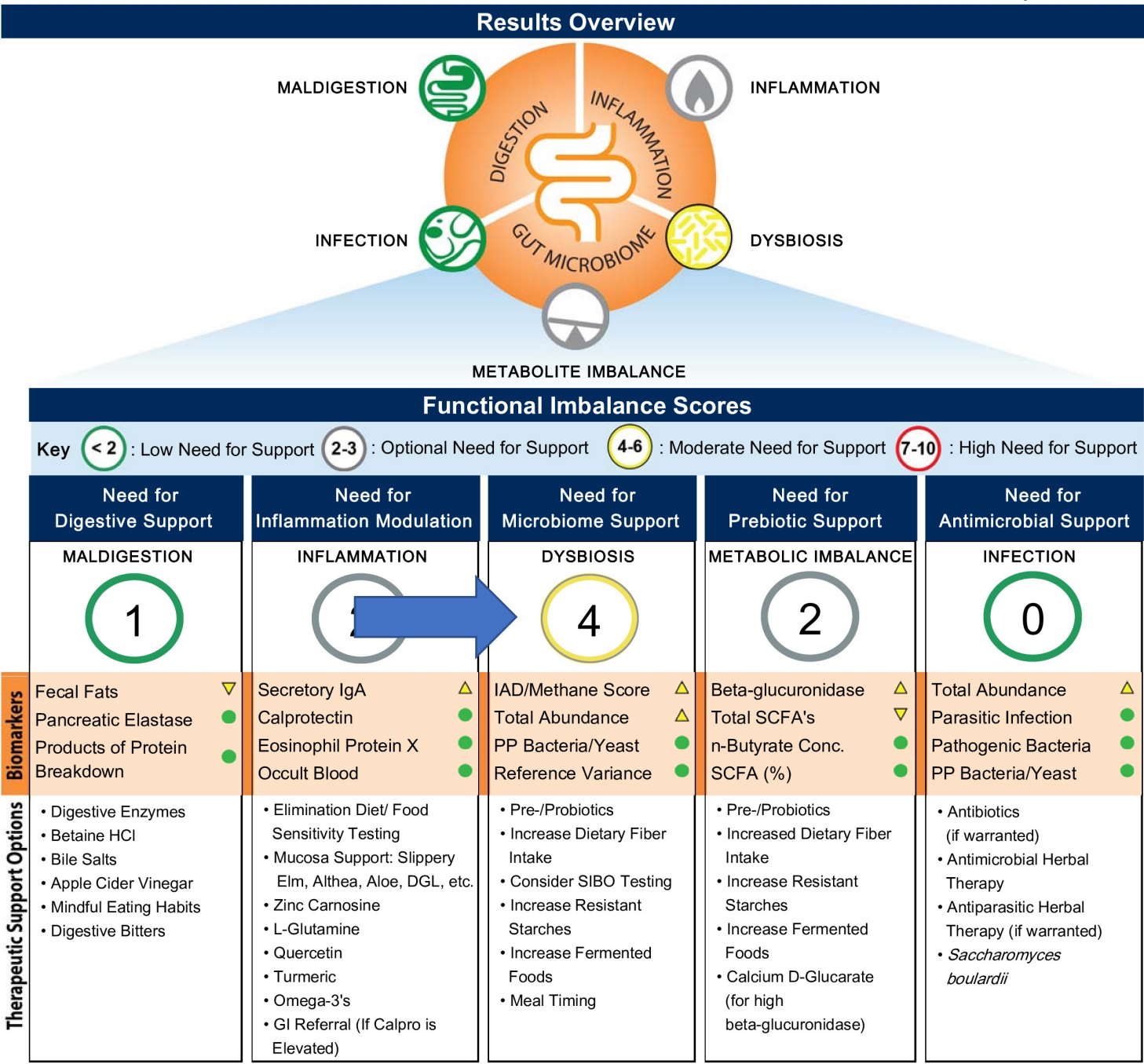
there is an association between caries and lower serum vitamin D. Improving children's vitamin D status may be an additional preventive consideration to lower the risk for caries



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Our body is designed to heal and  
renew itself when given the correct  
care and adequate nutritional  
support.

GI





**Zonulin:** a protein, synthesized in intestinal and liver cells, that reversibly regulates intestinal permeability.

- Induces the breakdown of the tight junctions between intestinal epithelial cells.

Parasitology

PCR Parasitology - Protozoa

Methodologies: DNA by PCR, Next Generation Sequencing

Organism	Result	Units		Expected Result
Blastocystis spp.	<2.14e2	femtograms/microliter C&S stool	Not Detected	Not Detected
Cryptosporidium parvum/hominis	<1.76e2	genome copies/microliter C&S stool	Not Detected	Not Detected
Cyclospora cayetanensis	<2.65e2	genome copies/microliter C&S stool	Not Detected	Not Detected
Dientamoeba fragilis	<1.84e2	genome copies/microliter C&S stool	Not Detected	Not Detected
Entamoeba histolytica	<9.64e1	genome copies/microliter C&S stool	Not Detected	Not Detected
Giardia	<1.36e1	genome copies/microliter C&S stool	Not Detected	Not Detected

Blastocystis spp. Reflex Subtyping

Type 1: N/A

Type 2: N/A

Type 3: N/A

Type 4: N/A

Type 5: N/A

Type 6: N/A

Type 7: N/A

Type 8: N/A

Type 9: N/A

A not applicable (N/A) result for Blastocystis reflex subtyping indicates the test was not performed.

Additional Results

Methodology: Fecal Immunochemical Testing (FIT)

	Result	Expected Value
Fecal Occult Blood*	Negative	Negative
Color††	Brown	
Consistency††	Formed/Normal	

††Results provided from patient input.  
Tests were developed and their performance characteristics determined by Genova Diagnostics. Unless otherwise noted with \*, the assays have not been cleared by the U.S. Food and Drug Administration.

Zonulin Family Peptide

Methodology: EIA

	Result	Reference Range
Zonulin Family Peptide, Stool	212.0	H 22.3-161.1 ng/mL

Zonulin Family Peptide

This test is for research use only. Genova will not provide support on interpreting the test results. This test does not detect zonulin.<sup>1</sup> The Scheffler paper suggests that the IDK kit may detect a zonulin family peptide, such as properdin. Genova's unpublished data demonstrated that the current IDK kit results were associated with stool inflammation biomarkers and an inflammation-associated dysbiosis profile.

The performance characteristics of Zonulin Family Peptide have been verified by Genova Diagnostics, Inc. The assay has not been cleared by the U.S. Food and Drug Administration.

# Zonulin 212ng/mL (22.3- 161.1 ng/mL)

- It was discovered in 2000 by Alessio Fasano
- Gliadin causes zonulin levels to increase
- **Zonulin level rises, the seal between the intestinal cells diminishes, opening up spaces between cells that allow all sorts of things to pass right through.**

Fasano, A.

Fasano, A. (2011) "Zonulin and Its Regulation of Intestinal Barrier Function: The Biological Door to Inflammation, Autoimmunity, and Cancer", *Physiological Reviews*, 91(1), pp. 151-175. doi: 10.1152/physrev.00003.2008.

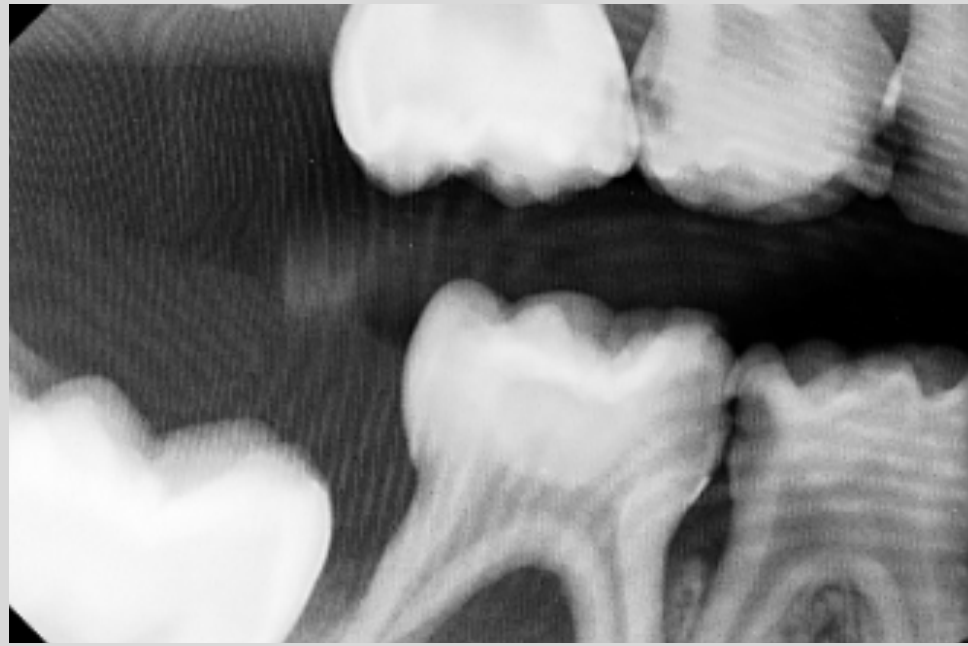
# Lead Exposure Increases Risk of Cavities in Children, Adults

- 11% of tooth decay may be due to moderate or high lead levels.
- Lead is a systemic toxin
- Disproportionately high decay rate in inner city children
- Lead stored in bones for decades
- Lead released into blood of pregnant women.

- **Lead Exposure Increases Risk of Cavities in Children, Adults**
- *Lead Exposure Increases Risk of Cavities in Children, Adults* (1999). Available at: <http://www.rochester.edu/news/show.php?id=715#:~:text=In%20the%20study%20funded%20by%20the%20National%20Institutes,levels%20previously%20thought%20to%20be%20low%2C%22%20says%20Lanphear.> (Accessed: 15 August 2021).



# Blood levels of the heavy metal, lead, and caries in children aged 24-72 months: NHANES III



This study indicated a strong association of blood lead levels with increasing numbers of carious teeth in children aged 24-72 months.

- Wiener RC, Long DL, Jurevic RJ. Blood levels of the heavy metal, lead, and caries in children aged 24-72 months: NHANES III. *Caries Res.* 2015;49(1):26-33. doi: 10.1159/000365297. Epub 2014 Oct 24. PMID: 25358243; PMCID: PMC4323869.

# Cure Caries with Collaborations: Look Outside the Mouth

- Blood Work/Food Sensitivities/Stool
- Breathing/Myofunctional Assessment
- Silent Acid Reflux
- Medications
- Sleep
- Airway
- Salivary diagnostics
- Allergies/ ENT Assessment
- Nutrition
- Malocclusion
- Oral Hygiene and the Microbiome Health



# Periodontal Health

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BLEEDING GUMS = **INFLAMMATION** = INFECTION  
Leaky Gums, Leaky Arteries, Leaky Gut, Leaky Brain  
MEDICAL CONDITION

# **Periodontal Disease is a Symptom of a Bigger Systemic Problem**

## **Microbial Dysbiosis**

## **LOOK DEEPER for Root Causes**

- Gut Dysbiosis
- Pathogens, Viruses, and Candida
- Systemic Diseases
- Mouth Breathing
- Sleep Disordered Breathing
- Respiratory Acid Reflux
- Oral Hygiene
- Genetics
- Orofacial Myofunctional Disorders
- Vitamin Deficiency:
  - Vit D3, K2, C, Mg, Boron, Iron, Iodine
- Sugar
- Diet/nutrition
- Cigarette, Cannabis, and smokeless tobacco
- Alcohol abuse/Drug abuse
- Weak immune system
- Medications
- Age
- Dexterity
- Airway issues
- Allergies
- Dental restorations
- Dry mouth
- Hg fillings/Metal Fillings
- Heavy Metal Toxicity
- Systemic Disease(s)
- Oral Microbial Dysbiosis

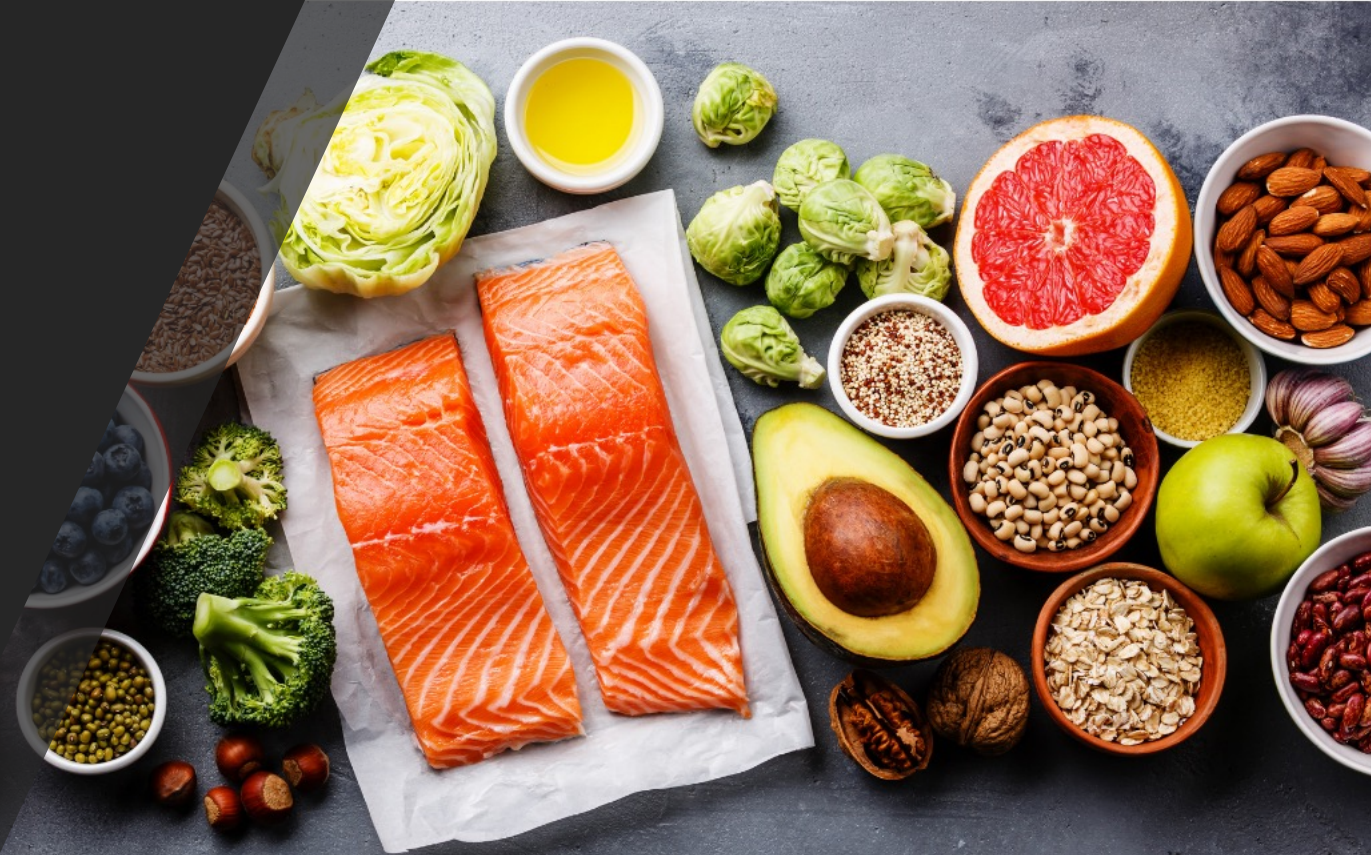
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Prophys by themselves do  
not make an unhealthy  
mouth healthy.



# Eat the Rainbow

- Low in sugar and refined carbohydrates
- Rich in plant-based vegetables and fruits
- Fiber
- Fermented foods
- Prebiotic foods
- Breastmilk



## **Dr Weston Price:**

**“All health starts  
with nutrient-dense,  
whole foods”**





# Fiber Rich Foods

Apples

Artichokes

Avocados

Bananas

Beans

Berries,

Cocnut

Cukes

Figs

Kale

Celery

Miso

- Good Bacteria **LOVE** whole, organic, plant-based foods
- High in Fiber
- No artificial ingredients





# STOP:

- Sugar
- Processed boxed foods
- Refined grains
- Refined oils
- Hormones
- Steroids
- Anti-inflammatories
- Acid Blockers
- Antibiotic soap
- Alcohol based sanitizers



# Prebiotics:

Types of dietary  
nondigestible  
carbohydrates that  
feed the friendly  
bacteria in your gut  
with fiber and grow  
beneficial microbes.

Prebiotic  
foods:

apples

bananas

seaweed

wheat bran

leeks

onions

garlic

oats

asparagus

jicama root

barley



# Probiotics- actual bacteria to seed gut

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- 25-50 billion CFU's
  - Bifidobacterium bifidum
  - Bifidobacterium longum
  - Bifidobacterium breve
  - Lactobacillus acidophilus
  - Lactobacillus rhamnosus
  - Lactobacillus bulgaricus



# Vitamins, Minerals and Supplements For Oral Health

- Vitamin A
- B complex vitamins
- Vitamin C
- Vitamin D3/K2
- Vitamin E
- Essential fatty acids
- Magnesium
- Boron
- Zinc
- Coenzyme Q 10
- Salt


# Grow a healthy garden of good bacteria for protection

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- Microbial Shift
  - Diet
  - Probiotics
  - Prebiotics
  - Dental hygiene
  - Treatment
  - Supplements and medications
  - Lower inflammation
  - Heal mouth tissues
  - Boost immune system
- 







# The Dental Piece of the Homeostasis Puzzle

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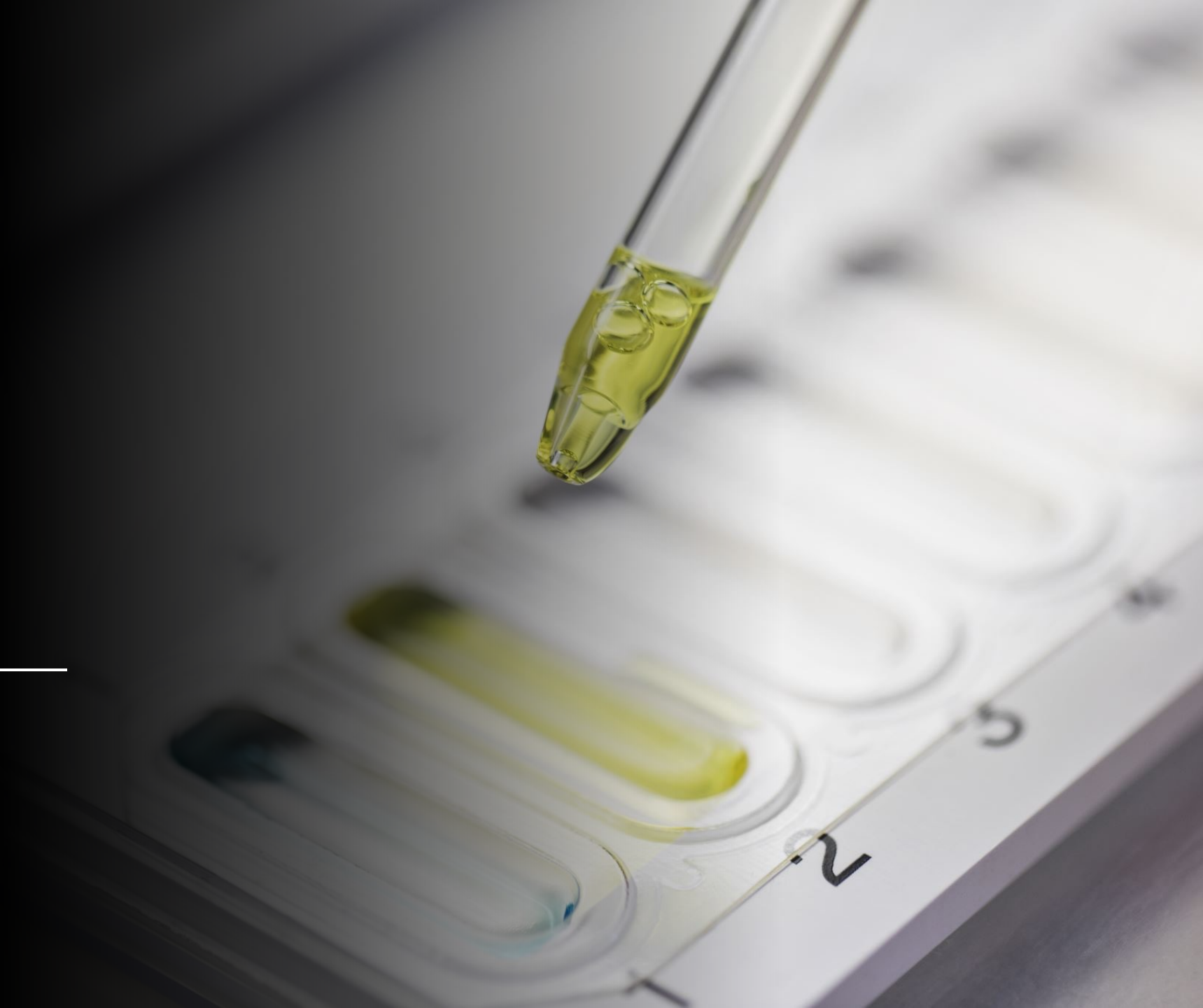
**TEST, TEACH,  
TREAT,  
Repeat**

**Until Healthy**



# Test

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# Life Changing

- Seeing is:
- Believing
- Motivating
- Encouraging
- Educating
- Enrolling
- Fulfilling
- Exciting
- Interesting





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A dental hygienist  
without a  
microscope is like a  
doctor without a  
stethoscope.

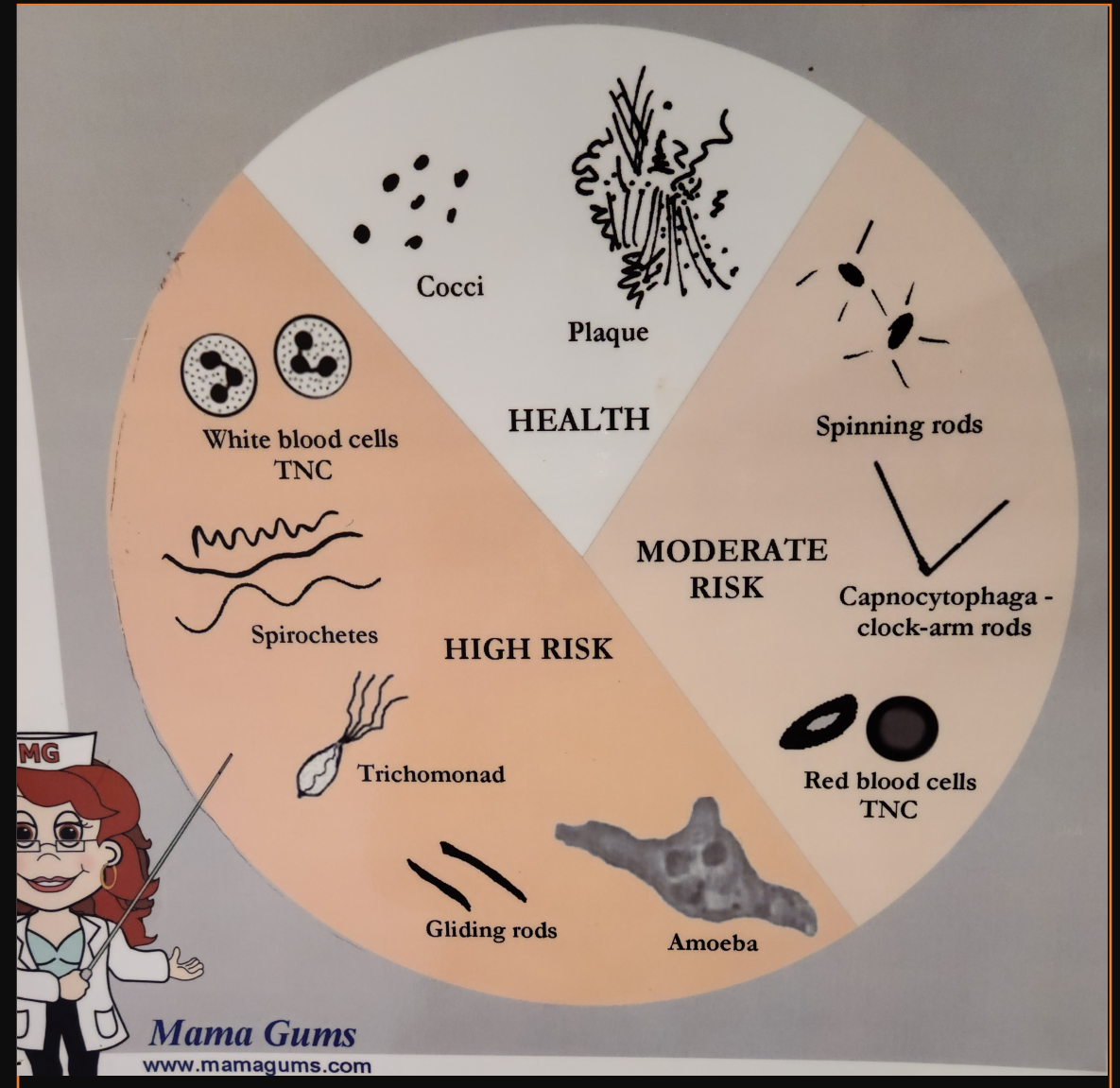
~Dr. Paul Keyes

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# Phase Contrast Microscopy

Health Versus Disease

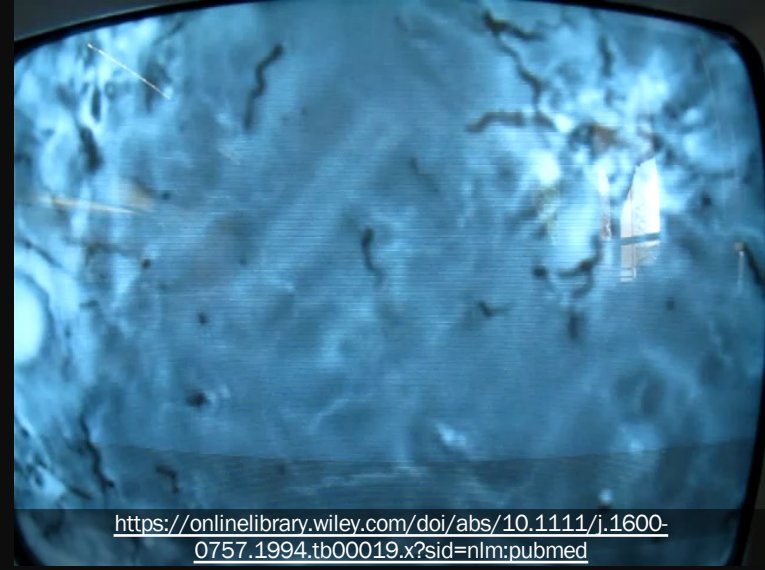




# Bacteremia

“Less than 1 minute after an oral procedure, organisms from the infected site may have reached the heart, lungs, and peripheral blood capillary system”.

- Anon
- Bacteremia originating in the oral cavity. A review
- (2021) *Medicinaoral.com*. Available at: <http://www.medicinaoral.com/medoralfree01/v13i6/medoralv13i6p355.pdf> (Accessed: 2 April 2021).







## Red blood cells and Spirochetes and UFO's

- The images are courtesy of CytoViva, Inc

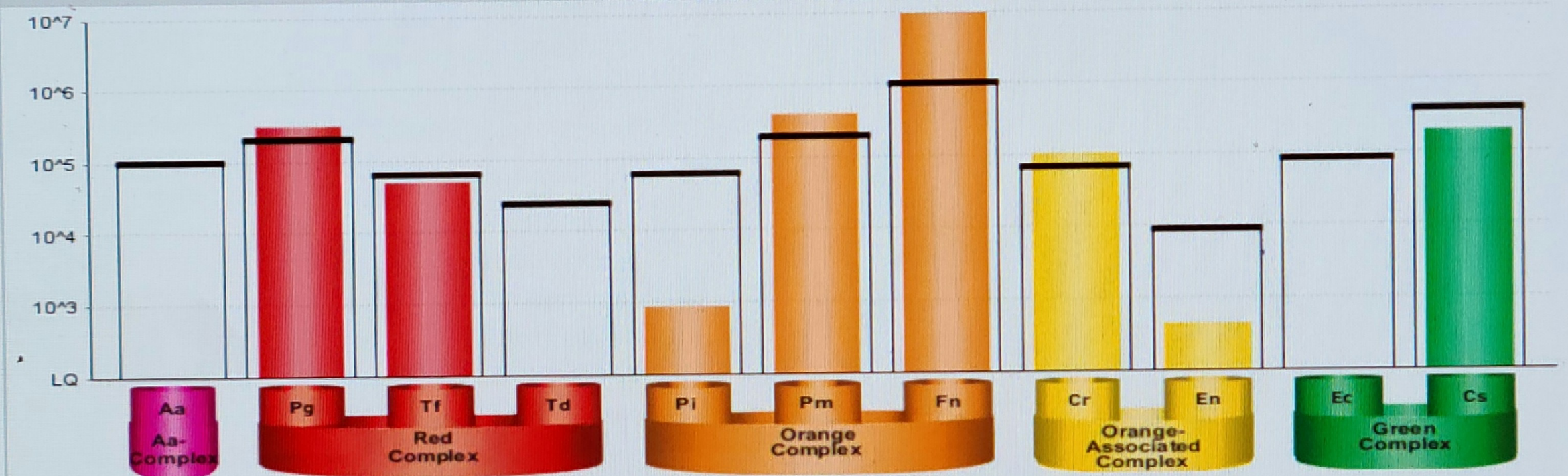


## DNA TEST FOR PERIODONTAL BACTERIA

Results: **PATHOGENIC BACTERIA DETECTED, 4 ABOVE THRESHOLD**

Pg Fn Cr Pm

The result graphic (below) shows the bacterial level for each of the assayed species. The vertical axis displays bacterial genome copies/milliliter in log<sub>10</sub>. The limit of quantification (LQ) is the lowest bacteria level that can be repeatedly measured. The black lines across each colored bar are the threshold.



**Treatment Considerations: to be determined by the healthcare professional**

- **Mechanical/Debridement:** Scaling and root planing (SRP) is a mainstay of therapy to disrupt biofilm, remove plaque and debride compromised tissue. This patient harbors a series of pathogens (Pg, Tf, Pi, Pm) that may be refractory to this treatment.
- **Systemic Antibiotics:** This patient has indicated no allergies.

1

Clindamycin 150 or 300 mg tid for 8-10 days

As always, use antibiotics with care

OR

\*If patient has intolerance to the first choice consider:

2

Ciprofloxacin 500 mg bid for 8-10 days

3

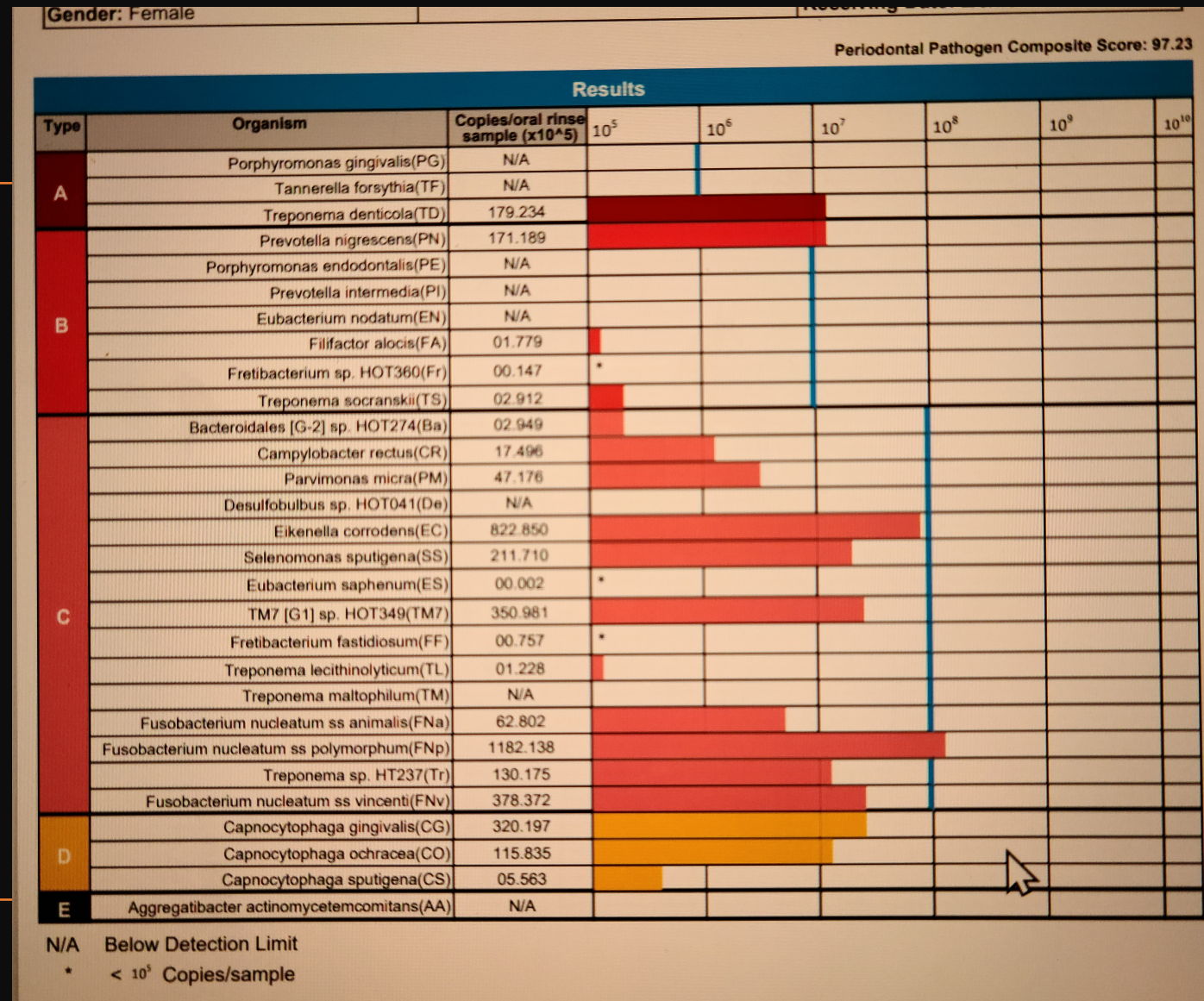
Clarithromycin 500 mg bid for 8-10 days

• **Local Antibiotics and Chemical Hygiene:** As an adjunct to SRP, sub-antimicrobial doses of doxycycline hyclate lower collagenase activity and



# Test, Teach, Treat, Retest Salivary Diagnostics

- Perio Pathogens
- Caries Pathogens
- Human Papilloma Viruses
- Halitosis pathogens
- Candida Albicans
- Genetics
- Herpes Simplex Viruses





# Cognitive Impairment 2020

Beta Amyloids evidence brain infection. Trying to fight infection of Spirochetes, Bacteria , Viruses and Fungi.

- Microbial involvement in Alzheimer disease development and progression Hannah R. Bulgart<sup>1</sup> , Evan W. Neczypor<sup>2,3</sup>, Loren E. Wold<sup>2,3,4</sup> and Amy R. Mackos<sup>3\*</sup>

- A recent hypothesis has emerged that resident **bacterial populations contribute to the development and progression** of AD by contributing to neuroinflammation, senile plaque formation, and potentially neurofibrillary tangle accumulation (Fig. 1).
- This review will highlight recent studies involved in elucidating microbial involvement in AD development and proregression.
- **Conclusion** The mounting body of evidence has illuminated an intimate relationship between microbial dysbiosis and AD.

<https://doi.org/10.1186/s13024-020-00378-4>

Molecular Neurodegeneration

# Salivary Diagnostics

The patient is HIGH risk for dental caries.

(Composite Score: 3894.67)




# Nitric Oxide

- **Relaxes and opens blood vessels**
- **Purifies and moistens the air**
- **Kills pathogens – bacteria and viruses**
- **Poorly vascularized tissues are relatively inefficient in responding to inflammatory stimuli.**
- **If your body can't produce nitric oxide, your body cannot and will not be able to defend itself from getting sick from an infection, including the coronavirus.**



Intervals (daily or weekly). Your goal is to maintain an "optimal" reading over time.  
The best time to monitor N-O levels is first thing in the morning, before eating or drinking.  
Antiseptic mouthwash and antibiotics can also affect accuracy of the results.  
1. Wash your hands and gather saliva on fingertip. 2. Place saliva on indicator strip pad.  
DO NOT PUT STRIP IN YOUR MOUTH 3. Compare results to the color chart.

NITRIC OXIDE RESTORATION SUGGESTED		IDEAL ONGOING LEVEL
Depleted	Low	Optimal

 This color indicates a spike of nitric oxide which may occur immediately following consumption of nitric oxide-producing products or foods.

Lot No: #30168 Unopened Exp 12/2022 PG-1826-06 Manufactured for and distributed by:  
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1250 S Capital of Texas Hwy, Building 1, Suite 360  
Austin, TX 78746  
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# Teach





Goal: Keep it Super Simple  
Remove the pathologic plaque  
Raise the pH  
Feed the good bacteria  
Boost the immune system

Electric  
Toothbrushes

Oral Irrigation

Interproximal  
Brushes

Toothpastes

- Remineralizes
- Feeds Good Bacteria
- Neutral pH
- Minimal Chemicals

Woven  
scrubby floss

Ozone

Disclosing  
tablets

Tongue  
cleaner



**Treat**

# Goal: Change the Oral Microbiome to Health

---

Raise the pH

---

Feed the good bacteria

---

Create homeostasis

---

Remineralize teeth

---

Establish nasal breathing

---

# Treating and Preventing Dental Diseases

## Biological dental office

- International Academy of Oral Medicine and Toxicology  
<https://iaomt.org>

## Test/Teach/Treat/Retest

- Salivary pathogen testing/Phase contrast Microscopy/Cari Screening

## Feed the good bacteria

Dysbiosis

## Reduce the pathological plaque biofilm

- Electric Toothbrush
- Oral Irrigation
- Clean in-between
- Healthy toothpastes

See your biological dental hygienist every 3 months

Gum therapy, laser, Ozone therapy, phase contrast microscopy

Nasal Breathing 24/7

See your primary care doctor for blood work/gut health/allergies/food sensitivities

See a functional nutritionist for diet evaluation – feed the good bacteria\*\*



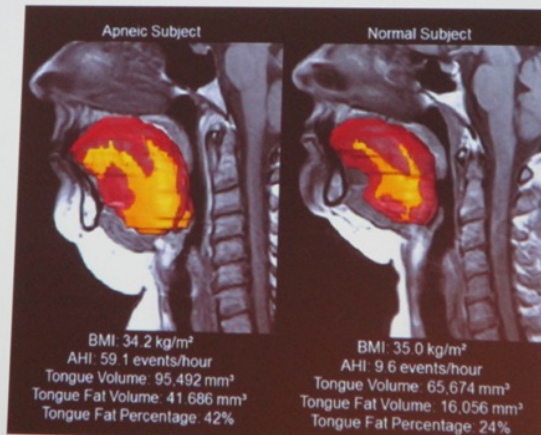
# The Mighty Tongue

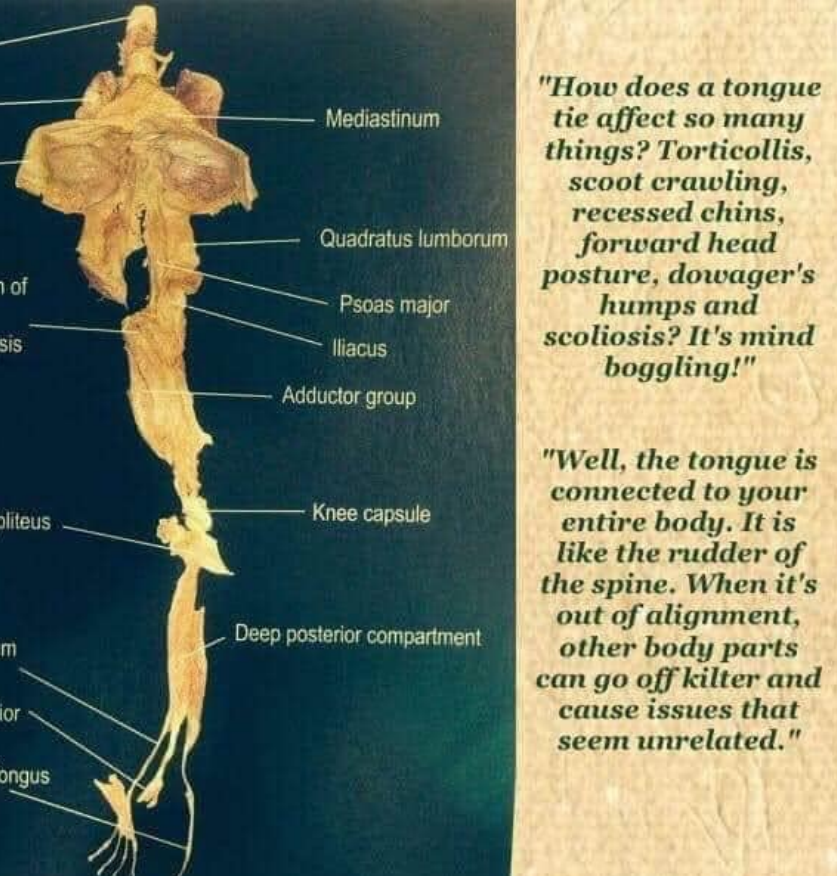
Lift  
Clean  
Evaluate



## Tongue and fat

Andrew M. Kim, Brendan T. Keenan, Nicholas Jackson, Eugene J. Staley, Harish Poptani, Drew A. Torigian, Allan I. Pack, et al. Tongue Fat and its Relationship to Obstructive Sleep Apnea. *Journal of Clinical Sleep Medicine*, 2014; DOI: 10.5665/sleep.4072





*"How does a tongue tie affect so many things? Torticollis, scoot crawling, recessed chins, forward head posture, dowager's humps and scoliosis? It's mind boggling!"*

*"Well, the tongue is connected to your entire body. It is like the rudder of the spine. When it's out of alignment, other body parts can go off kilter and cause issues that seem unrelated."*



# The Mighty Tongue Rules Them All. Be Aware of Myofunctional Disorders.

# Goal:

Not to strip and sterilize but create conditions to support a healthy microbiome.







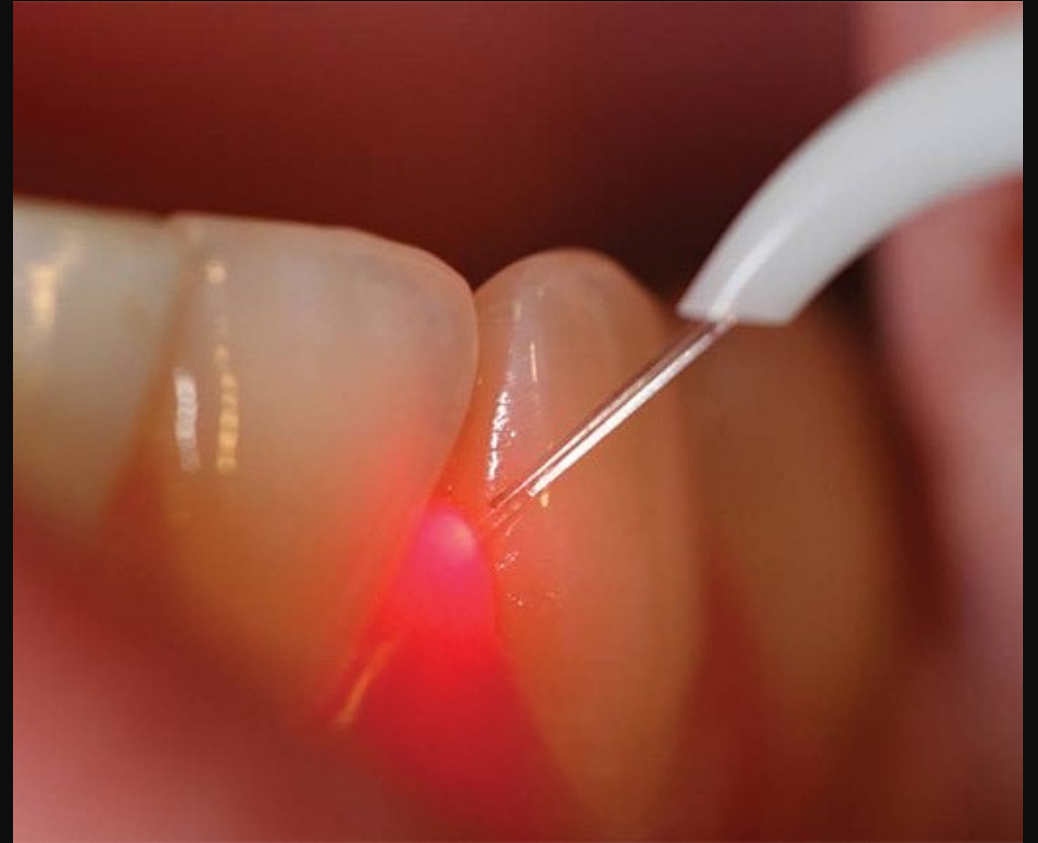
# Air Polisher

## Disrupt the Biofilm



# Gum Therapy Photobiomodulation Desensitization Disinfection

Laser therapy





# Ozone/Oxygen Machines



# Biofilm Health



# Healthy Patient Goals:

No Bad  
Plaque

No  
Calculus

No  
Bleeding

No  
Cavities

No  
Recession

No Bad  
Breath



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# Defeat Dental Disease the Biological Way

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- **Test, Teach, Treat, Repeat**
- Get to the **Root** of the problem
- **Collaboration**- refer to Primary Care /Functional Medicine Doctors/Nutrition
- Address Orofacial **Myofunctional** Disorders
- Destress- Meditation /exercise
- Equip your Dental Hygienists with the very best **tools** to achieve the goals

## GOAL:

---

- Healthy Mouth
  - Healthy Gut
  - Healthy Brain
  - Healthy Body
- 



- Barbara Tritz RDH, BS, MSB, HIAOMT
- Specialist in Orofacial Myofunctional Therapy
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- contact@queenofdentalhygiene.net

