

Casual Friday Series

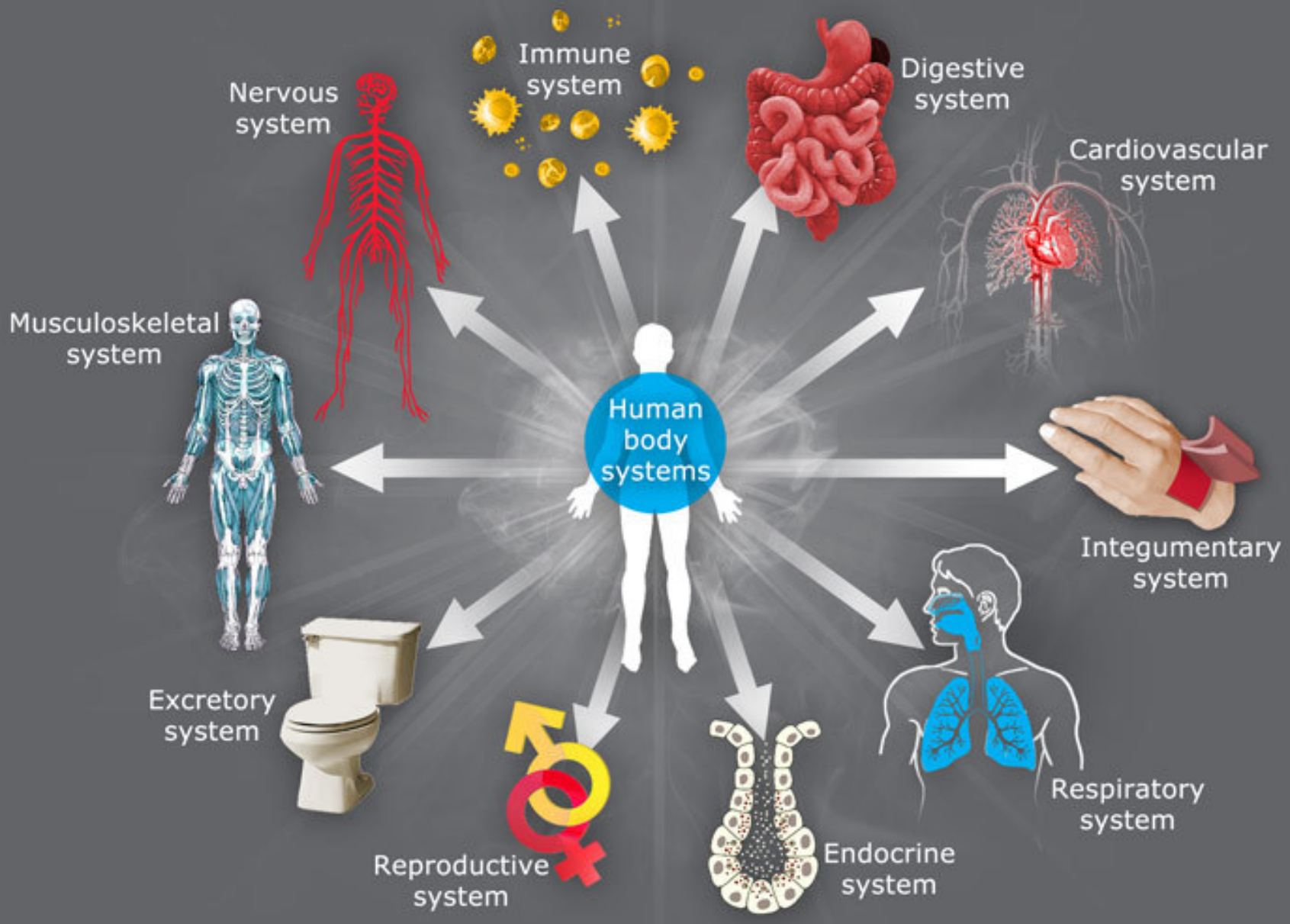
# **Exploring the Interconnections Between Oral Health and Chronic Disease**



# Disclaimer

- *Information in this presentation is not intended, in itself, to diagnose, treat, reverse, cure, or prevent any disease. While this presentation is based on medical literature, findings, and text, The following statements have not been evaluated by the FDA.*
- *The information provided in this presentation is for your consideration only as a practicing health care provider. Ultimately you are responsible for exercising professional judgment in the care of your own patients.*

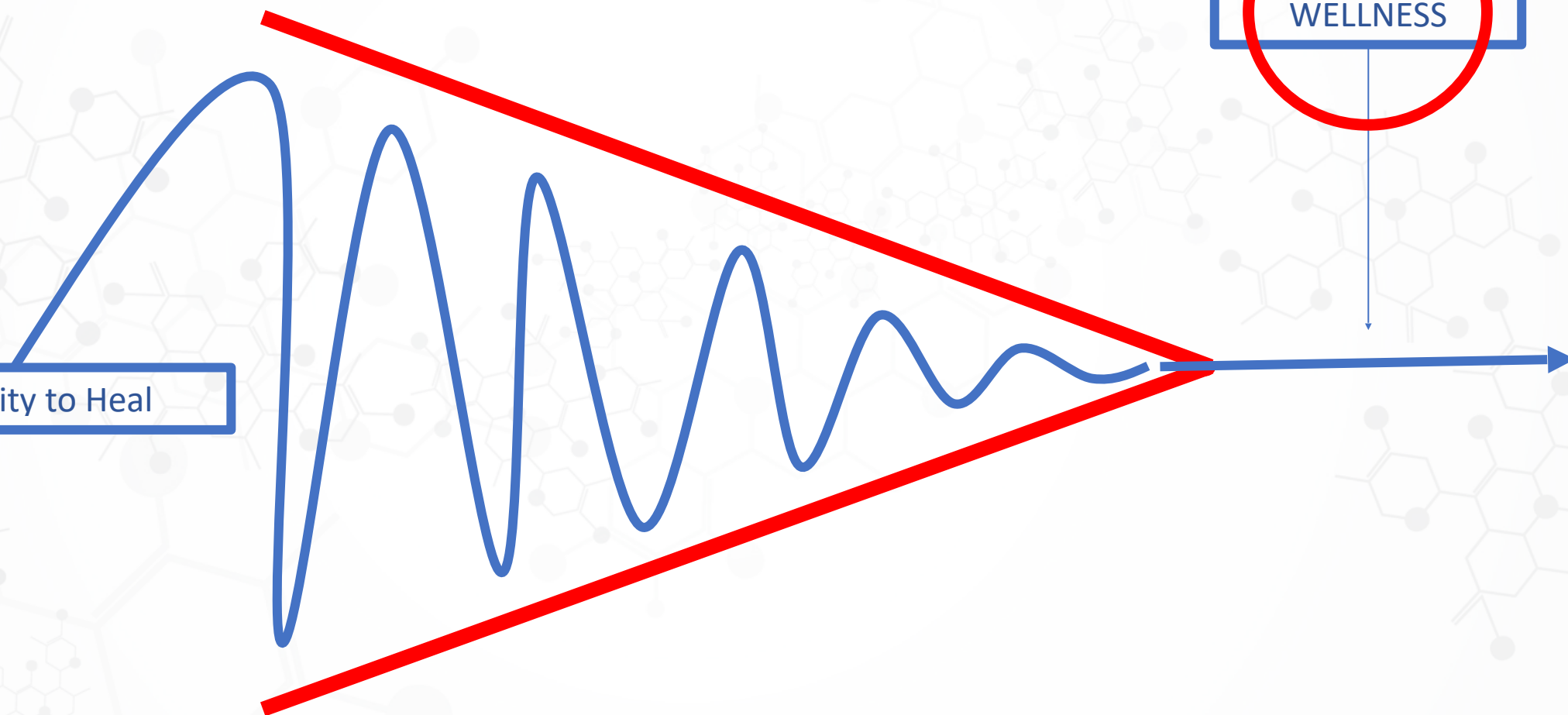




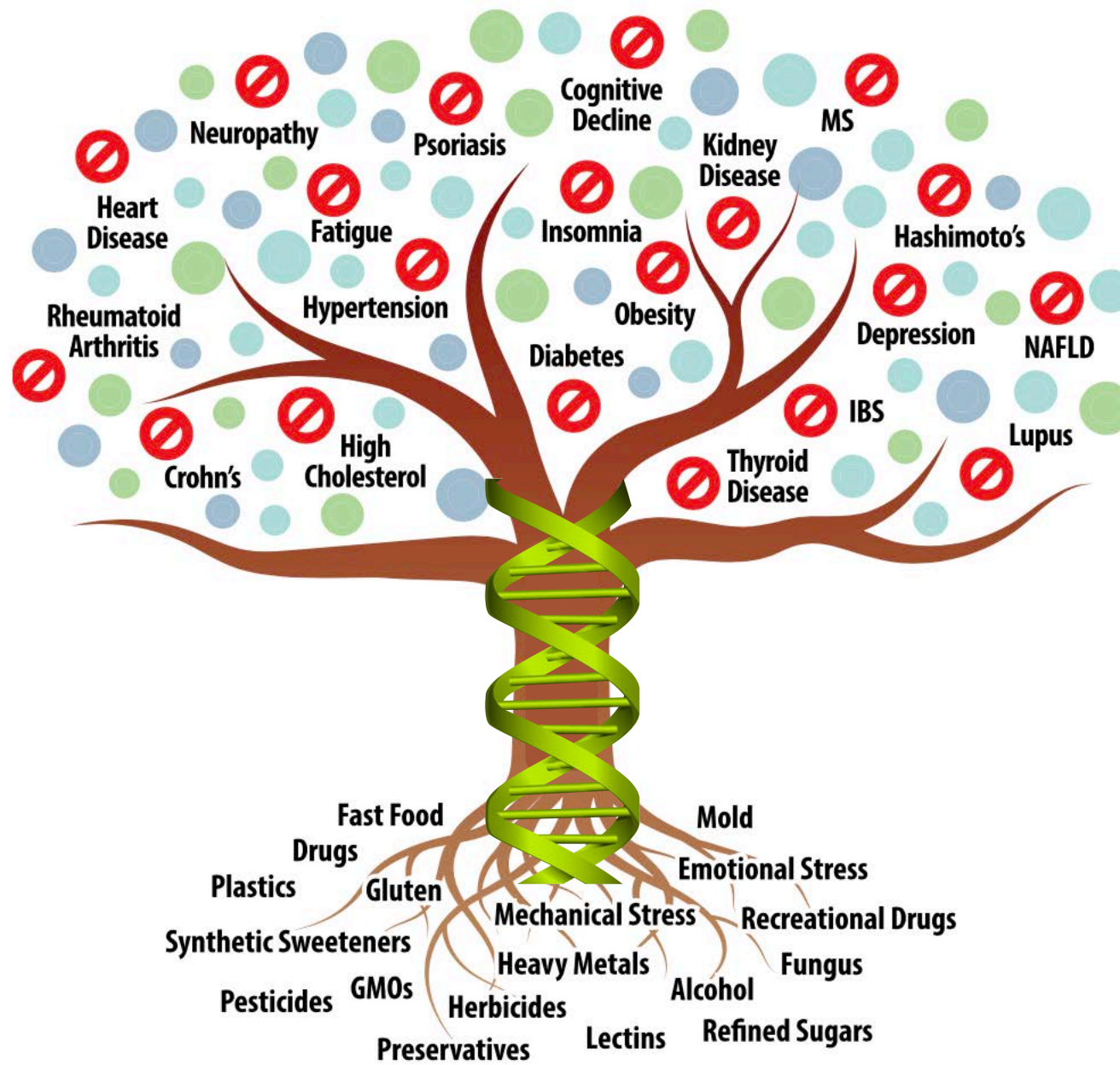
# The Wedge Protocol

The Ability to Heal

WELLNESS







# **Oral Health and Chronic Systemic Inflammation**



# The Mouth's Role in Systemic Health

- The oral cavity as a complex ecosystem
- The bidirectional relationship between oral health and systemic well-being
- The mouth mirrors what is happening in the rest of the body and can provide early signs of systemic disease.
- Tongue examination and diagnosis in Chinese medicine.



# The effects of oral health on systemic health

- The mouth and oral cavity are focal points for the interaction of the body with the external environment
- The mouth is the intersection of medicine and dentistry and the window into the general health of a patient
- Atherosclerotic vascular disease, pulmonary disease, diabetes, and pregnancy-related complications are the major conditions that effect a large percentage of the population and have been well studied for their relationship to oral health, but it is probably safe to assume that there are other conditions that have some degree of association.
- Most of our patients with these chronic conditions likely do not think that a problem in their mouth can affect their heart, blood sugar, immune systems, or bones.





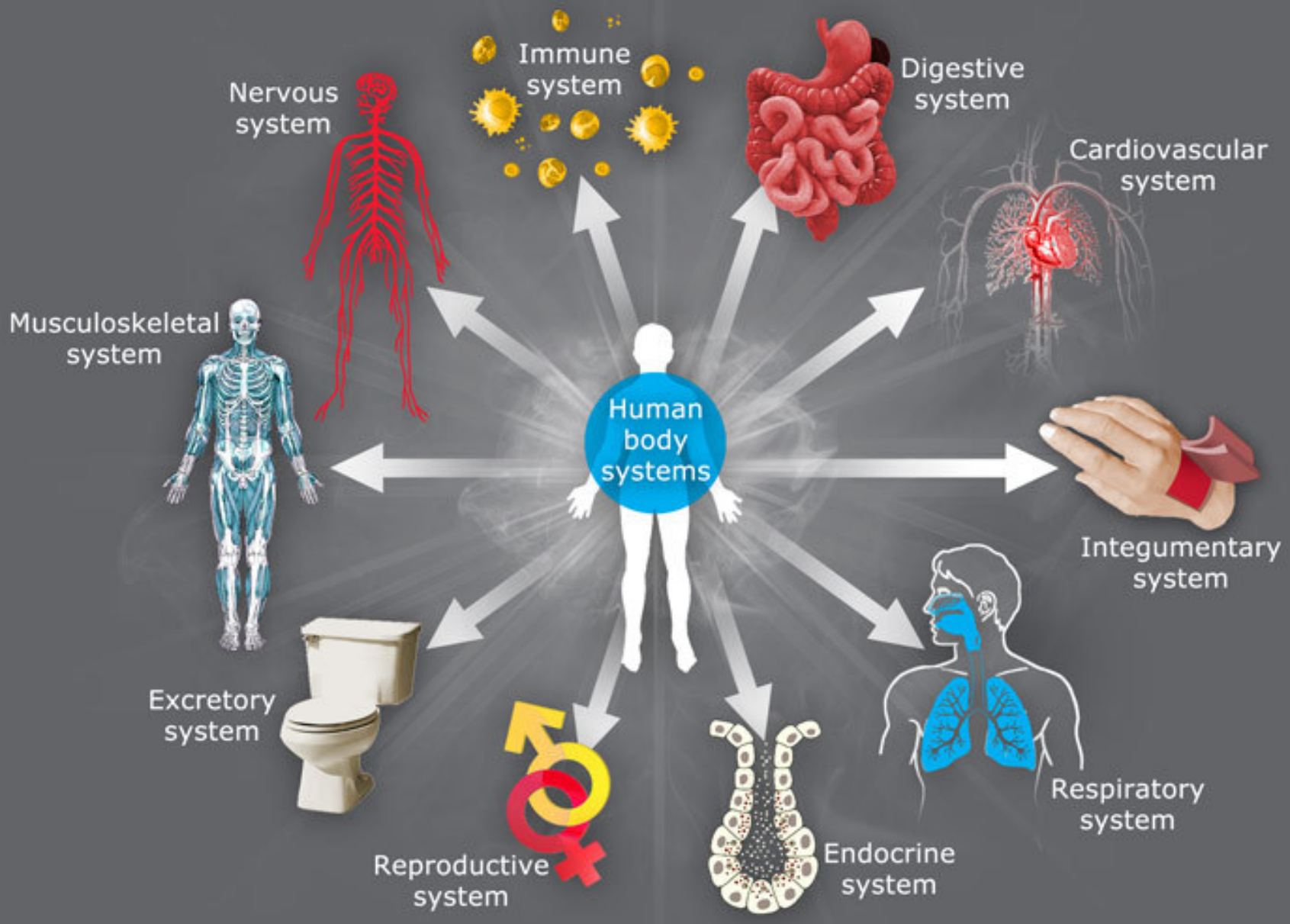
# **3 Pathways to Systemic Illness**



# Paths to Systemic Illness

- Only recently has oral/gum disease been seen to originate or effect the course of a growing number of systemic diseases. Even though the research and literature has shown the connection for sometime.
- These oral imbalances often come with a generalized increase in oxidative stress secondary to the circulatory factors involved with chronic inflammation, equally impacting all tissues and cells.
- Oral microbiome, pathogens, and additional toxins (ie metals, biotoxins, etc) have a tremendous impact on oral disease and health.
- There are 3 main pathways that are being studied that link oral infections to systemic illness and disease.





# Pathway 1

- Oral infections and dental procedures can allow microbes to gain entrance to the blood and circulate throughout the body.
- Normally the microorganisms are eliminated and wiped out within minutes and do not cause problems.
- However, in a chronically inflamed system these microorganisms find favorable conditions that allow them to settle in and multiply.





# Pathway 2

- Oral microbes involved in tooth, bone and gum infections produce toxins that affect that rest of the body.
- When the oral ecosystem is disrupted, the pathogenic or “bad” microbes produce toxins that are comparable to lethal poisons.
- These microbial toxins accumulate and damage the tissues and contribute to illness.
- It has been shown that these “pockets” also harbor parasites, Lyme, and other heavy metals as a power in numbers approach.



# Pathway 3

- Oral microorganisms can trigger an immune response that causes an inflammatory cascade driving inflammation throughout the body.
- Antigens cause an immune response that leads to the production of antibodies.
- This chronic immune activation can drive various acute and chronic inflammatory reactions.





**Atherosclerotic Plaques**

*Porphyromonas gingivalis,*  
*Aggregatibacter actinomycetemcomitans,*  
*Tannerella forsythia,*  
*Prevotella intermedia,*  
*Prevotella nigrescens,*  
*Streptococcus sanguinis*



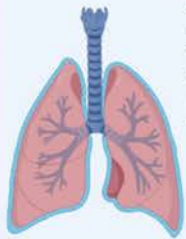
**Periodontal Disease:**

*Porphyromonas gingivalis,*  
*Aggregatibacter actinomycetemcomitans,*  
*Tannerella forsythia,*  
*Prevotella spp., Treponema spp.*



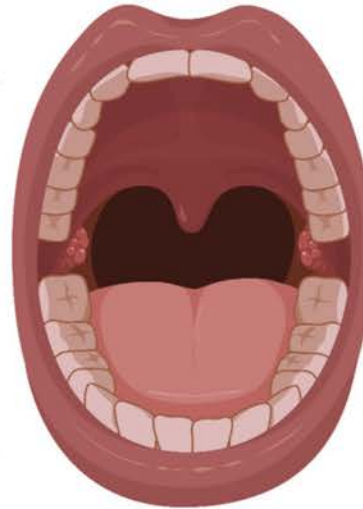
**Primary Endodontic Infection:**

*Peptostreptococcus spp., Dialiste spp.,*  
*Parvimonas micra, Fusobacterium nucleatum,*  
*Fillifactor alocis, Treponema denticola,*  
*Pseudoramibacter alactolyticus,*  
*Porphyromonas endodontalis,*  
*Porphyromonas gingivalis, Prevotella nigrescens,*  
*Prevotella baroniae, Prevotella intermedia,*  
*Tannerella forsythia, Enterococcus faecalis*



**Pneumonia:**

*Porphyromonas gingivalis,*  
*Prevotella intermedia,*  
*Aggregatibacter actinomycetemcomitans,*  
*Capnocytophaga spp., Eikenella corrodens,*  
*Streptococcus constellatus*



**Dental Caries:**

*Streptococcus mutans,*  
*Lactobacillus spp.,*  
*Propionibacterium spp.,*  
*Atopobium spp.,*  
*Bifidobacterium dentium*



**Rheumatoid Arthritis:**

*Porphyromonas gingivalis,*  
*Prevotella intermedia,*  
*Tannerella forsythia*



**Sjorgren's Syndrome:**

*Veillonella parvula,*  
*Fusobacterium spp.,*  
*Porphyromonas gingivalis,*  
*Epstein-Barr virus,*  
*Bifidobacterium spp.,*  
*Dialister spp.,*  
*Lactobacillus spp.*



**Systemic Lupus Erythematosus:**

*Selenomonas spp.,*  
*Treponema denticola,*  
*Veillonella, spp.,*  
*Leptotrichia spp.,*  
*Epstein-Barr virus*

# Common Dental Procedures

- Some of the consistently overlooked dental procedures/issues being linked to these issues...
  - Amalgam Fillings
  - Dental Implants (typically with metal)
  - Root Canals
  - Tooth Extractions
  - Crowns
  - And more





# The Connection Most of Us Have Heard

## Periodontal disease and cardiovascular disease: epidemiology and possible mechanisms

Robert Genco<sup>1</sup>, Steven Offenbacher, James Beck

Affiliations + expand

PMID: 12085720 DOI: [10.14219/jada.archive.2002.0375](https://doi.org/10.14219/jada.archive.2002.0375)

The evidence suggests a moderate association... since oral bacteria have been found in carotid atheromas and some oral bacteria may be associated with platelet aggregation, an event important for thrombosis.



# Simple Act of Flossing Lowers CRP

[Int Dent J](#). 2022 Aug; 72(4): 484–490.

Published online 2021 Nov 29. doi: [10.1016/j.identj.2021.10.001](https://doi.org/10.1016/j.identj.2021.10.001)

PMCID: PMC9259379

NIHMSID: [NIHMS1818551](#)

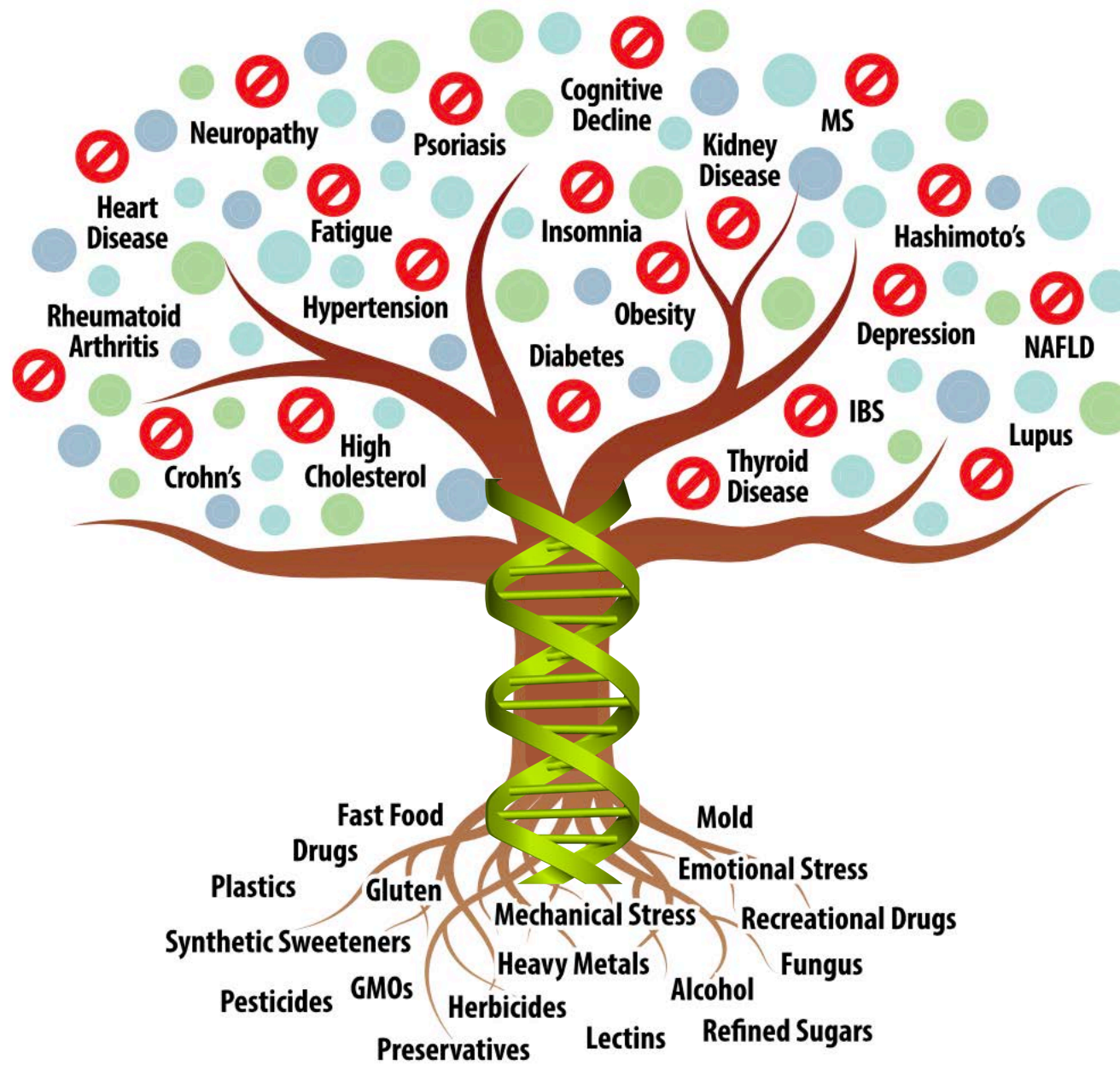
PMID: [34857389](#)

## Oral Health, Diabetes, and Inflammation: Effects of Oral Hygiene Behaviour

[Huabin Luo](#),<sup>a,\*</sup> [Bei Wu](#),<sup>b</sup> [Angela R. Kamer](#),<sup>d</sup> [Samrachana Adhikari](#),<sup>c</sup> [Frank Sloan](#),<sup>e</sup> [Brenda L. Plassman](#),<sup>f</sup> [Chenxin Tan](#),<sup>b</sup>  
[Xiang Qi](#),<sup>b</sup> and [Mark D. Schwartz](#)<sup>c</sup>

Findings from this study highlight the importance of improving oral health and oral hygiene practice to mitigate inflammation. Further research is needed to assess the longer-term effects of reducing inflammation.







# Interconnections between the Oral and Gut Microbiomes: Reversal of Microbial Dysbiosis and the Balance between Systemic Health and Disease

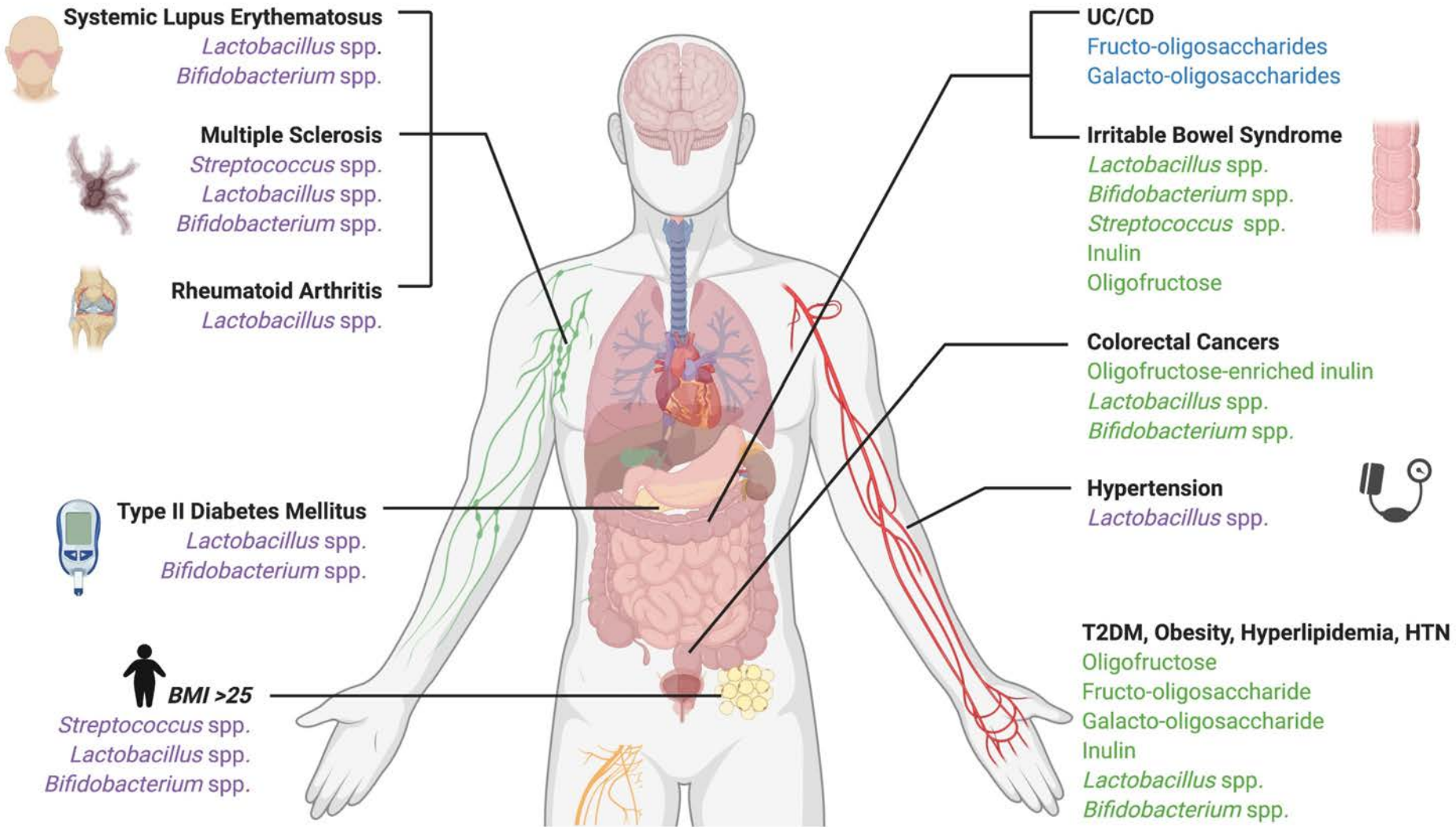
Brandon Khor<sup>1,†</sup>, Michael Snow<sup>1,†</sup>, Elisa Herrman<sup>1,†</sup>, Nicholas Ray<sup>1,†</sup> , Kunal Mansukhani<sup>1,†</sup> ,  
Karan A. Patel<sup>1,†</sup>, Nasser Said-Al-Naief<sup>2</sup>, Tom Maier<sup>2</sup> and Curtis A. Machida<sup>2,\*</sup>

- The balance between eubiotic health and dysbiotic pathology is dependent upon the diversity and quantity of specific microorganisms in the host microbiome. The interconnection between oral and systemic dysbiosis provides a common pathway for progression to autoimmune, inflammatory, and pernicious diseases.
- Although half of the bacterial species found in the GI tract have oral origins, further research that targets quantitative assessment of the oral/GI translocation may further elucidate the characteristics, etiopathogenesis, and link between oral inflammatory pathologies and systemic diseases





# Prebiotics, Probiotics, Synbiotics



Use of prebiotics, probiotics, and synbiotics as therapeutic strategies for the reversal of microbial dysbiosis. Numerous bacterial species and dietary substrates have been shown to therapeutically shift microbiota composition and alleviate the symptoms and biomarkers of systemic diseases.



# What are we doing to disrupt our oral ecosystem?

- Mouthwash
- Toothpaste
- Mouth breathing
- Diet
- Medications



# Patient Education and Conscious Decision Making

- As we navigate the intricate web of oral health, chronic diseases, and the environment, it becomes paramount to empower individuals with knowledge.
- Stress the significance of not just knowing but truly understanding the connections between our oral health and the unsung heroes involved in managing the ecosystem we call our body.
- It's about bridging the gap between awareness and action.
- Explore how the choices we make, from dental practices to lifestyle decisions, have a ripple effect not just on our individual well-being but on the broader canvas of our environment
- From the toothpaste we choose to the foods we savor, each decision holds the power to influence not only the health of our mouths but the intricate symphony of our entire system.



