

Wonderful world of bugs and spit: The oral microbiome's role in health and disease

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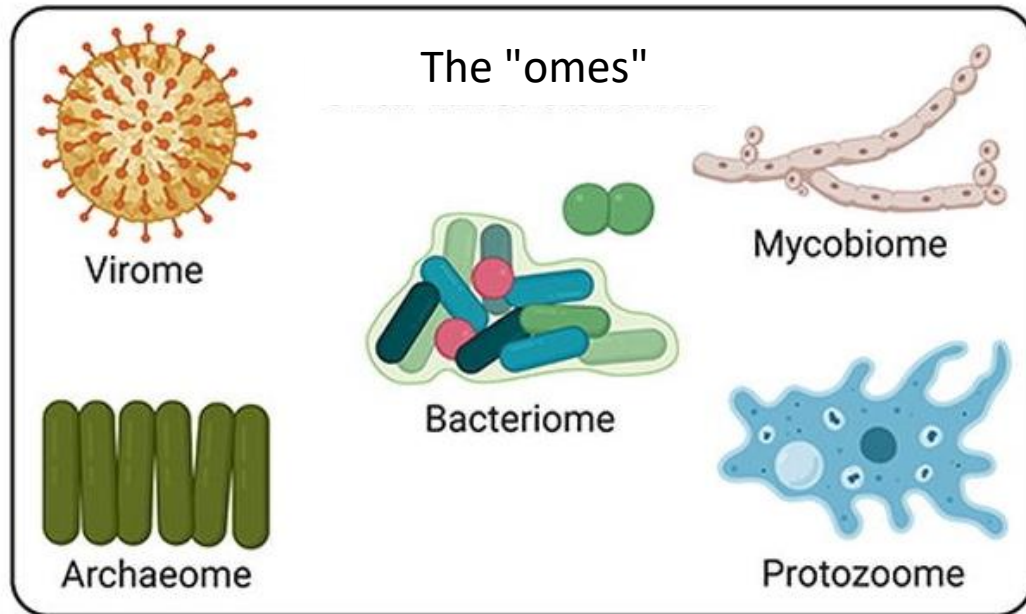
January 18, 2022

Talk Outline

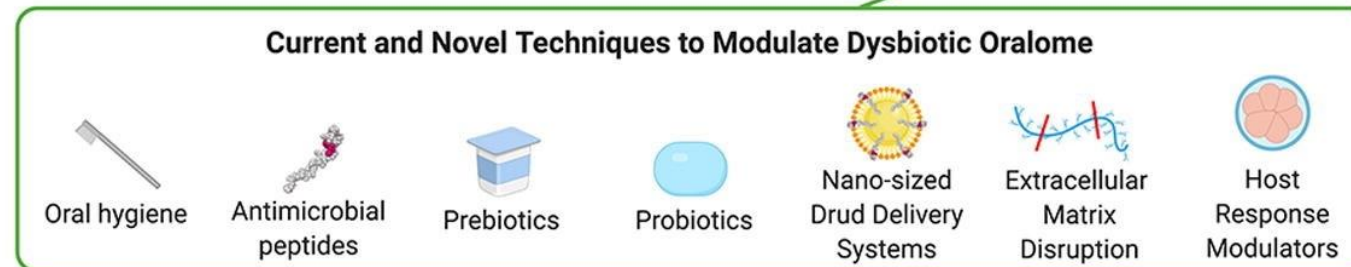
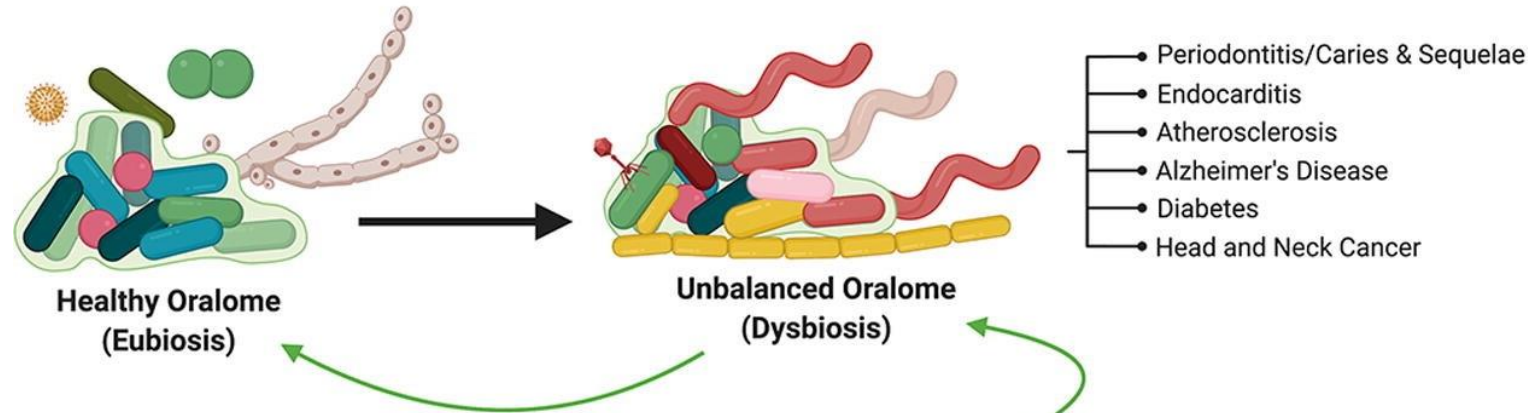
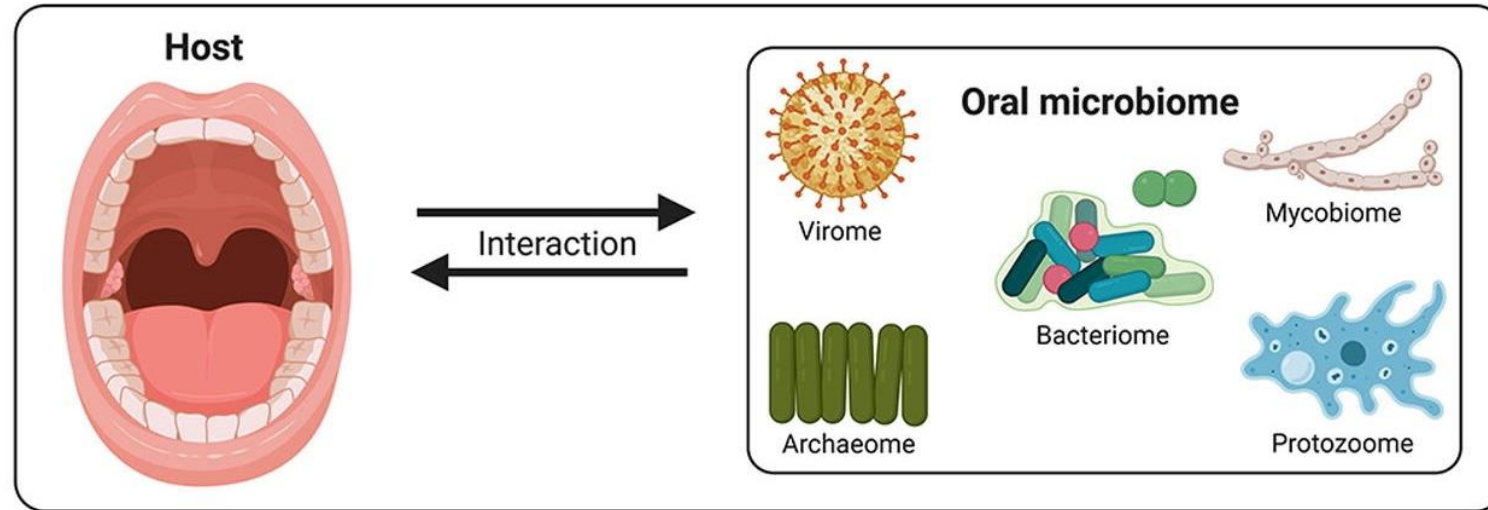
- What is the microbiome
- Oral microbiome and impacts on health
- Saliva microbiome – methods and concepts

What is the human microbiome?

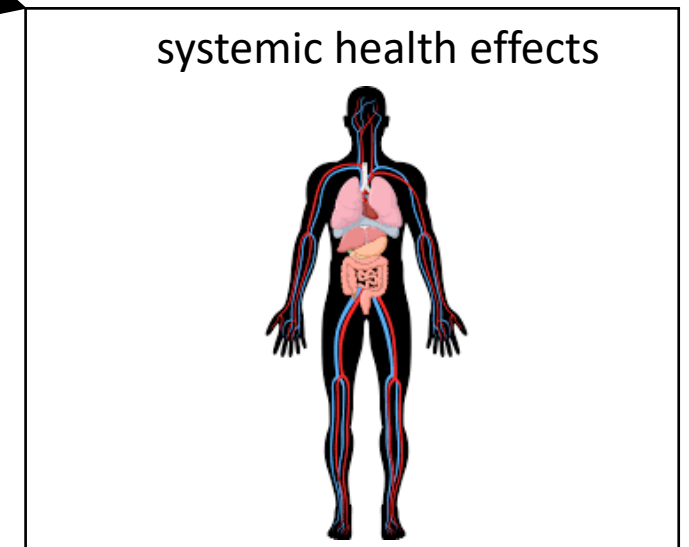
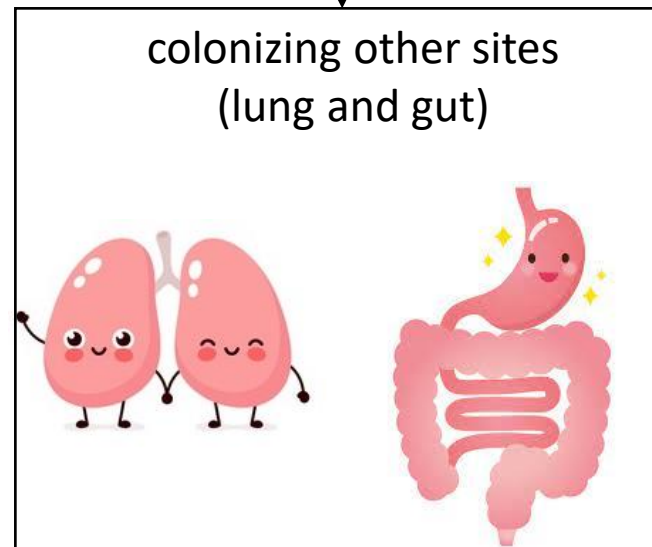
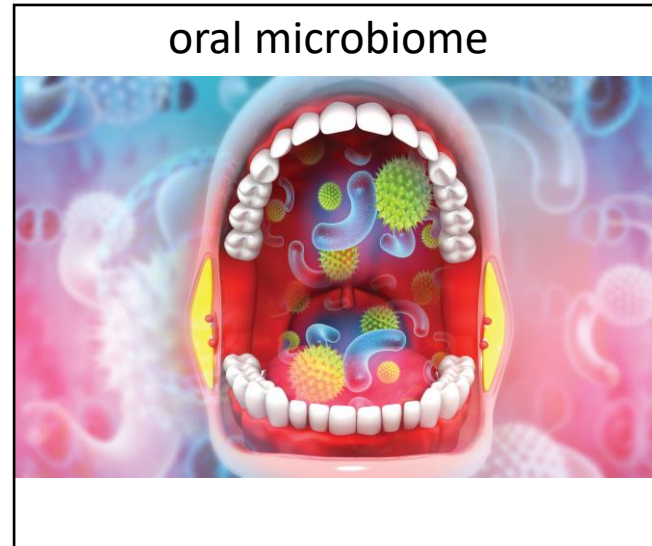
"The microbes that live in and on us"



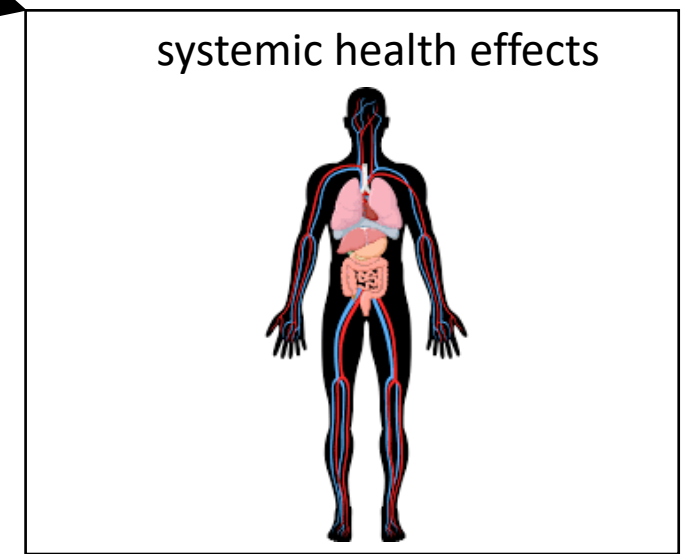
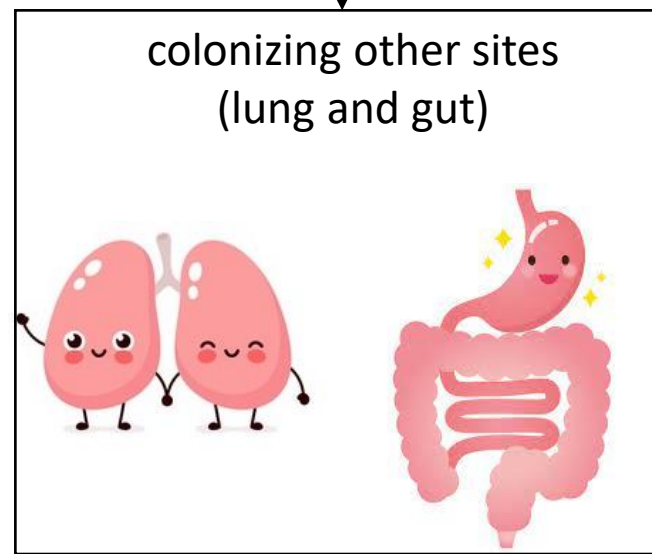
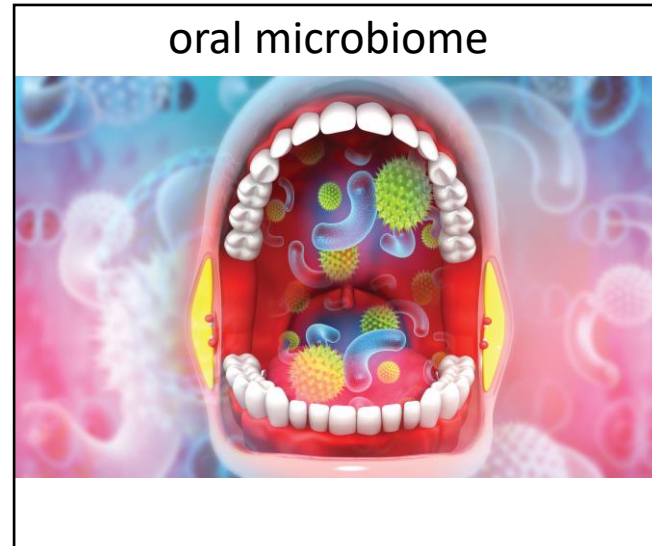
Oral microbiome in health and disease



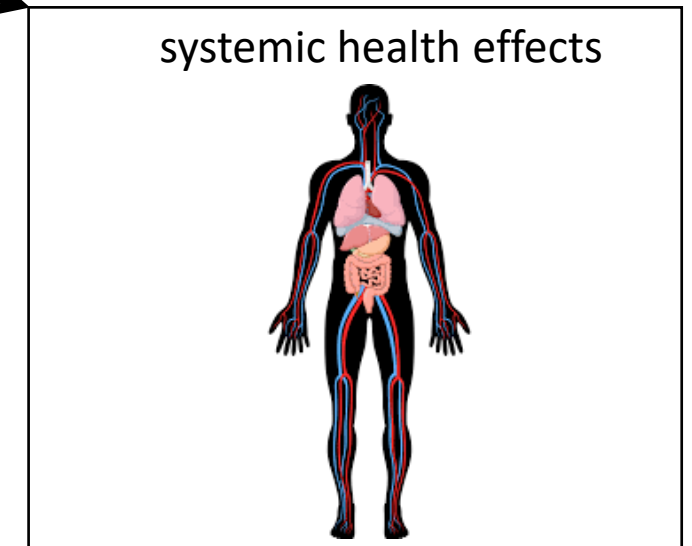
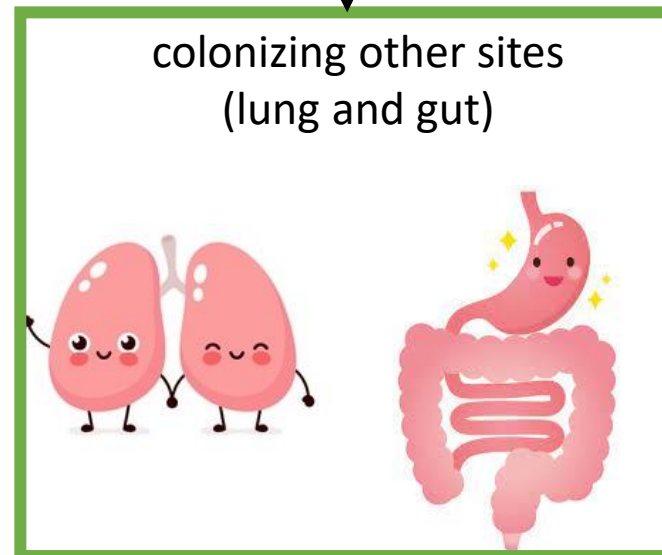
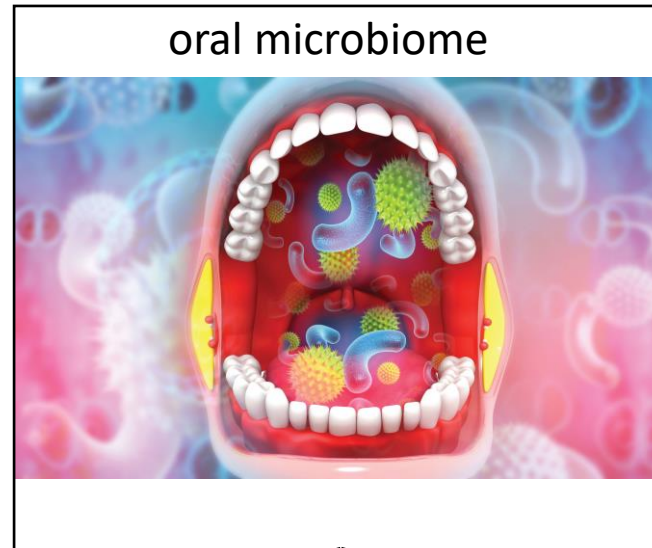
Oral microbiome influence on health



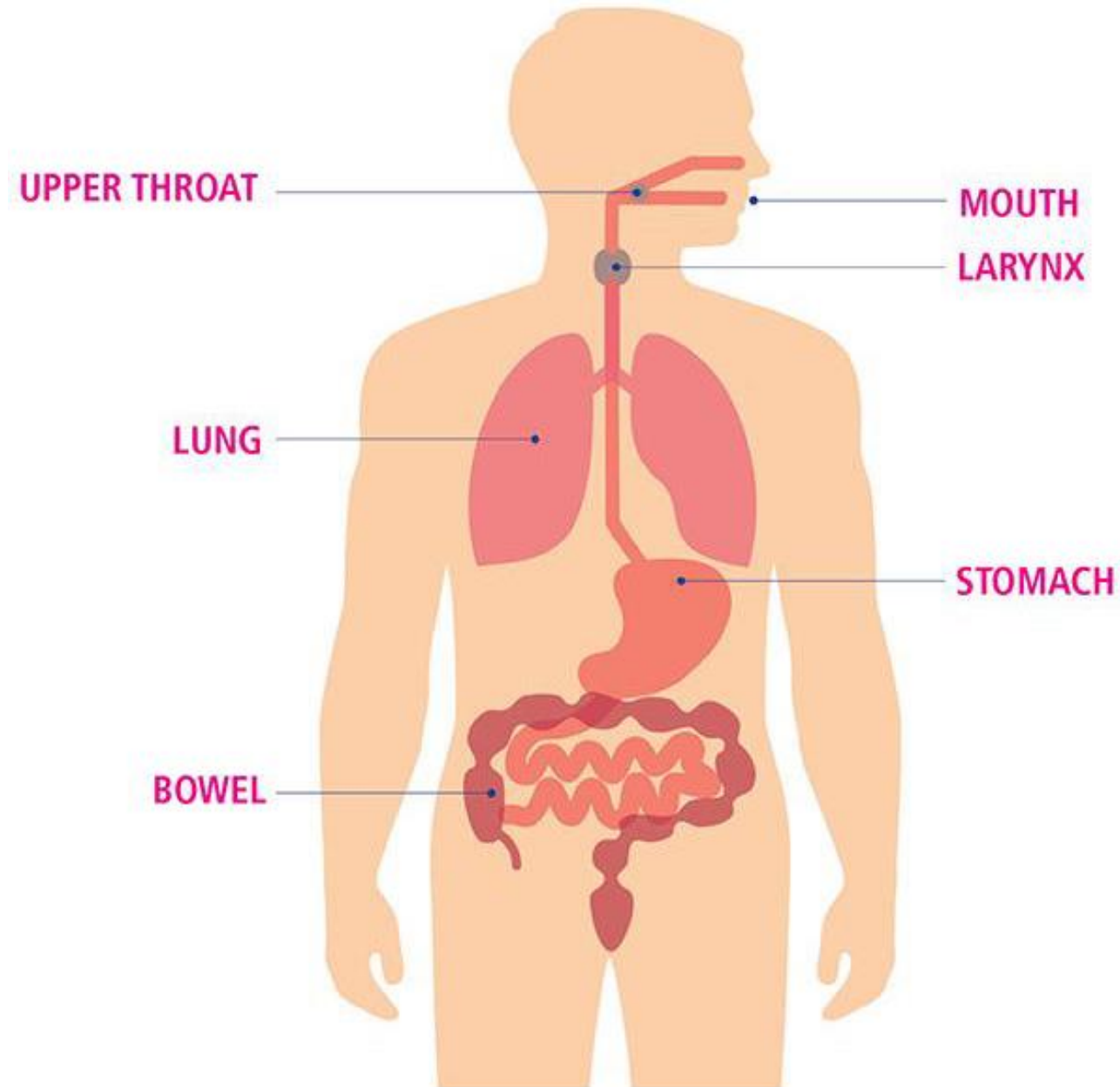
Oral microbiome influence on health



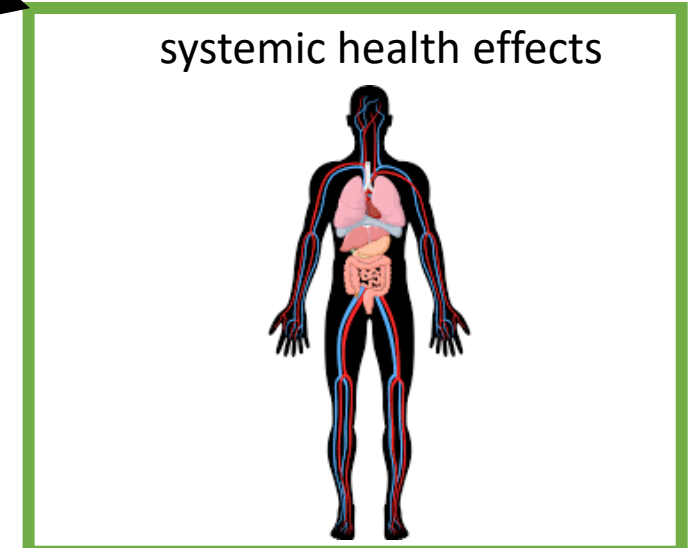
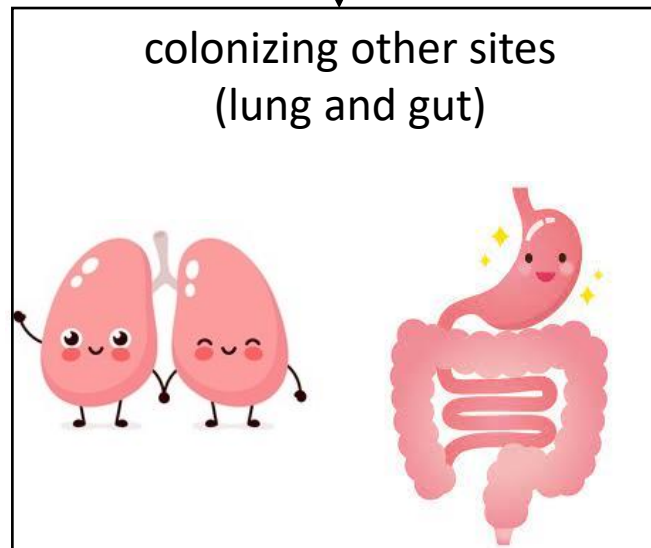
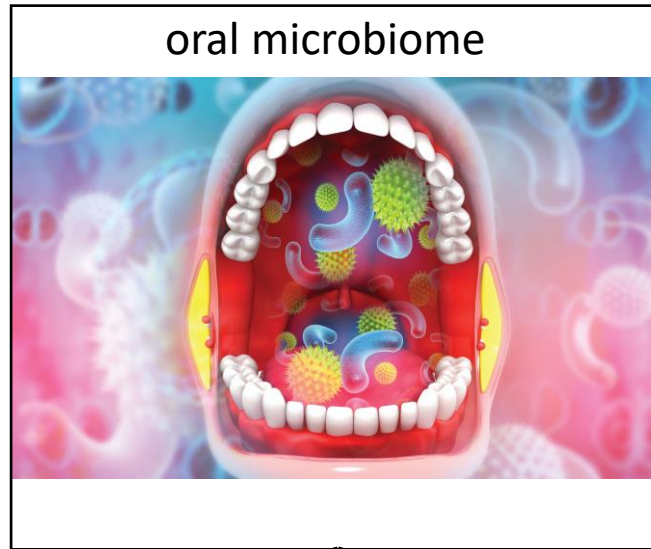
Oral microbiome influence on health



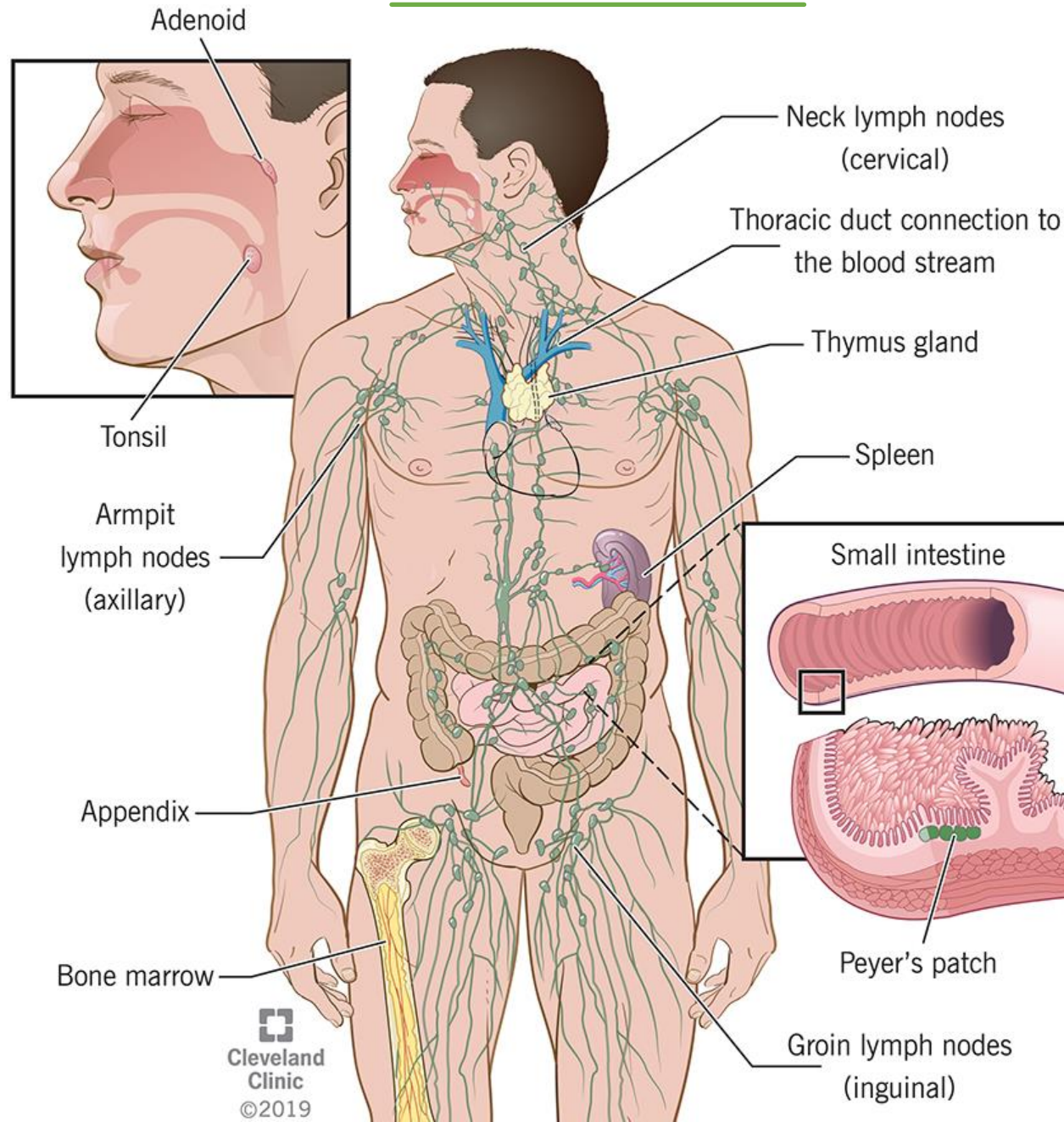
Oral microbiome colonizing other sites



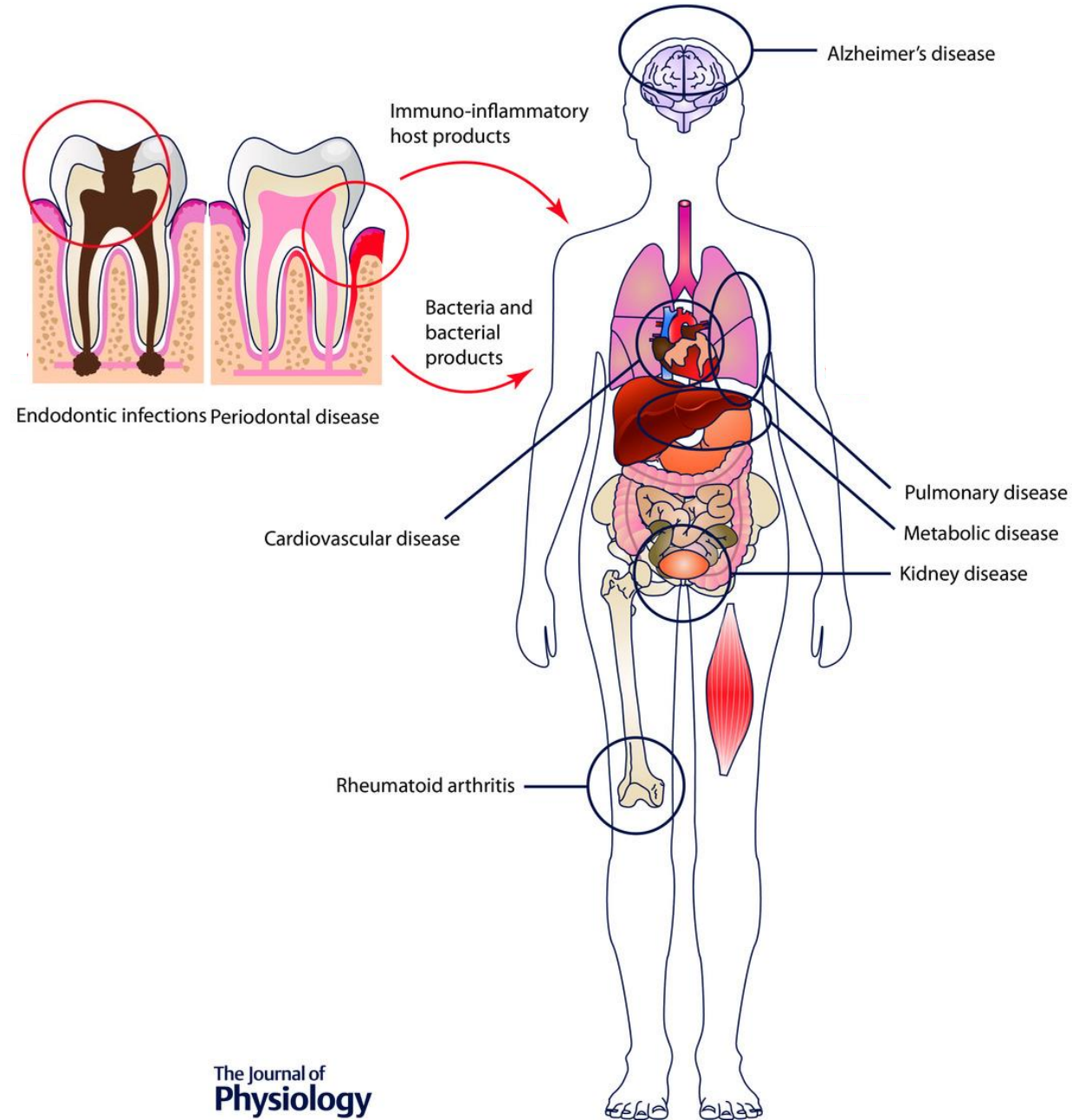
Oral microbiome influence on health



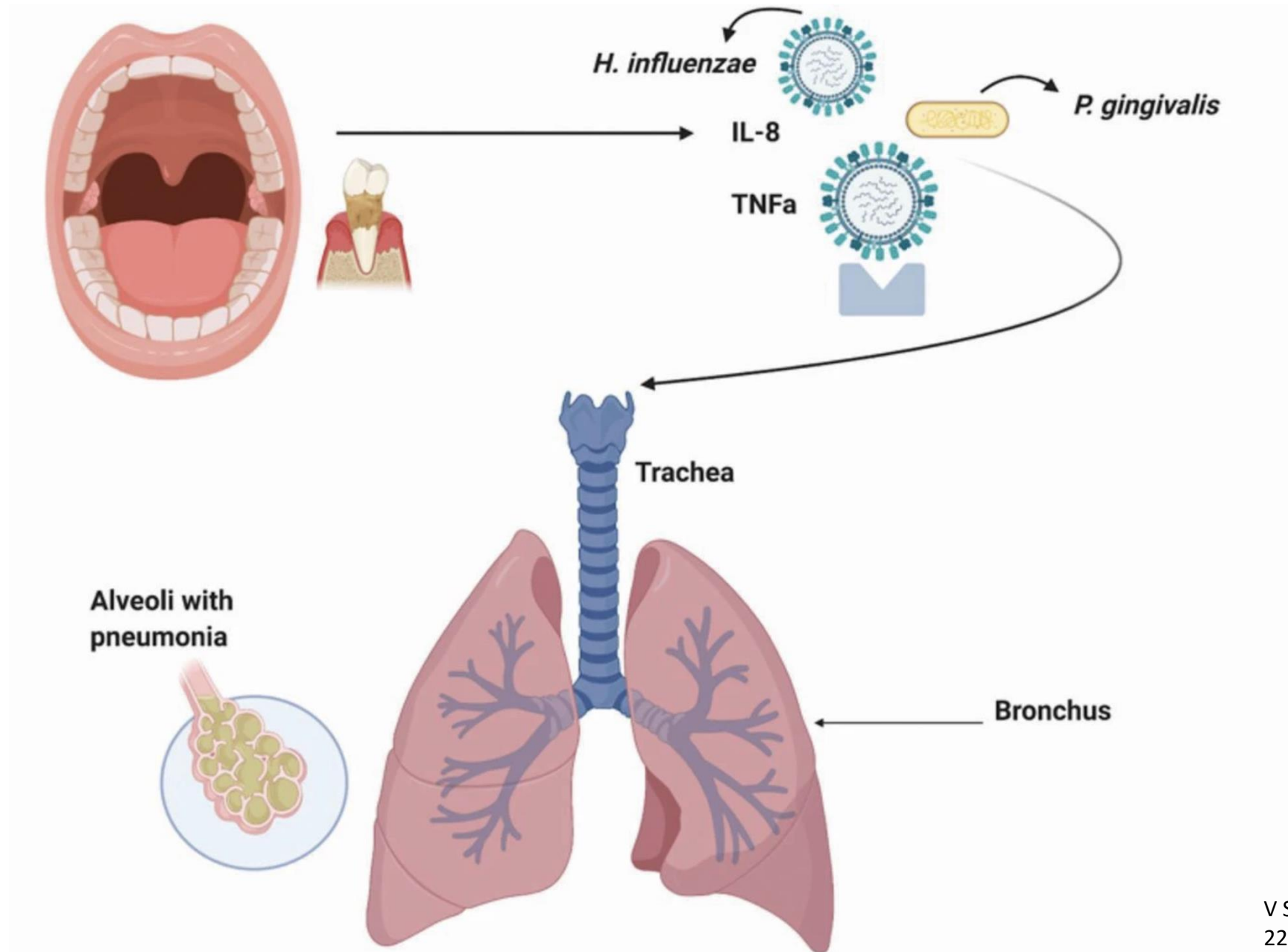
Our bodies are connected by the immune system



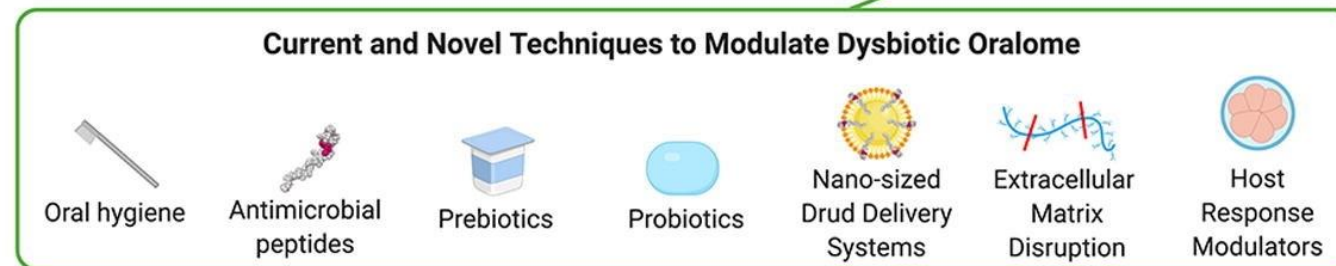
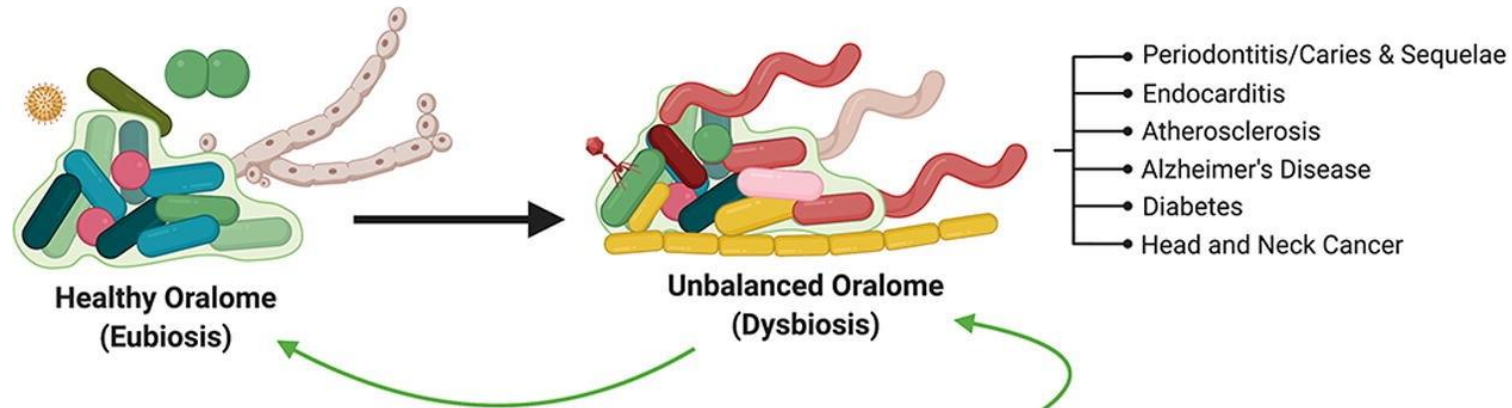
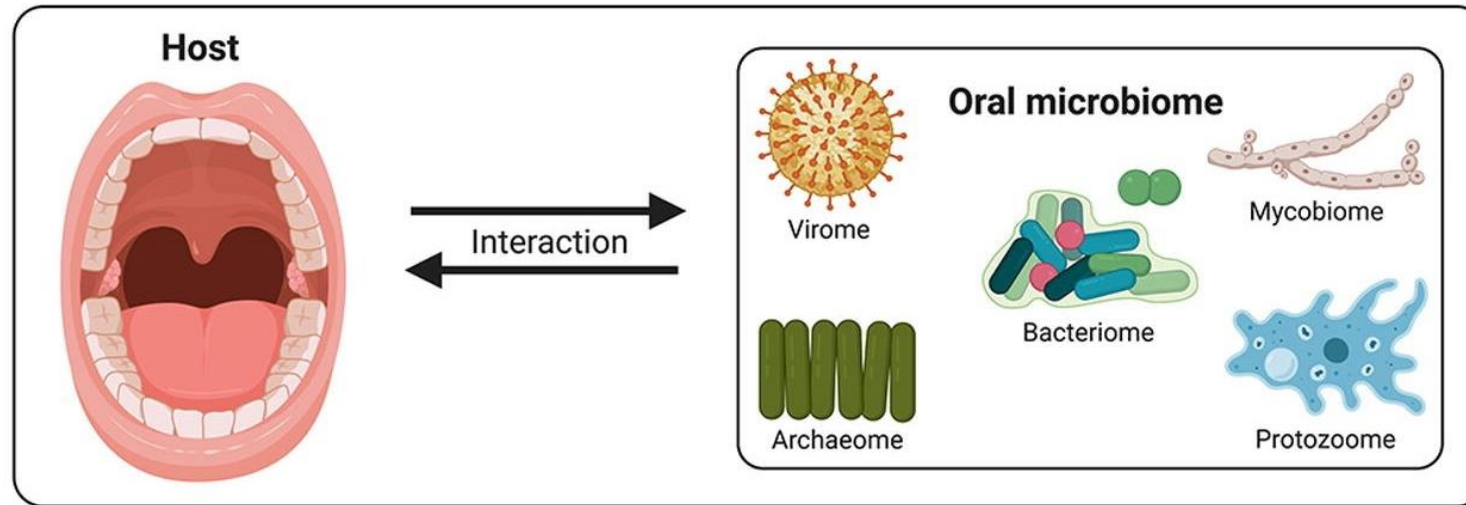
Oral microbiome influences systemic health through inflammation



Example of oral microbiome influence on lung infection



Oral microbiome in health and disease

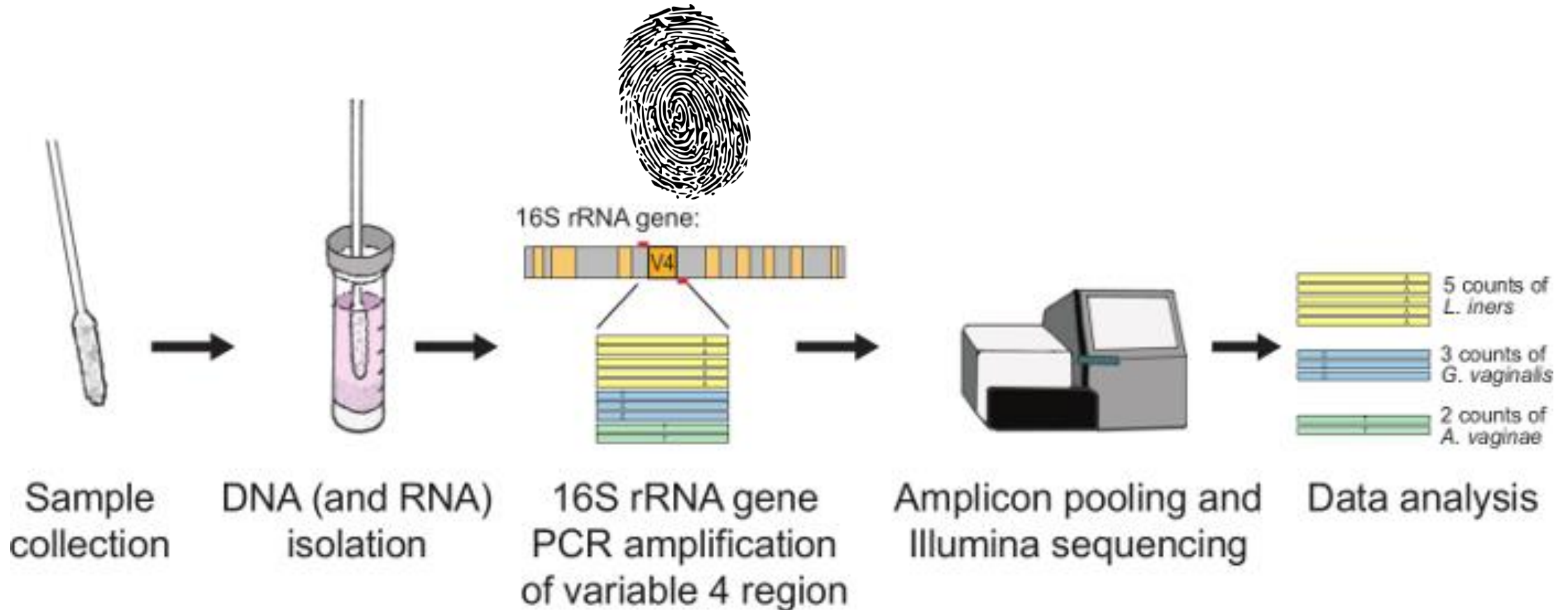


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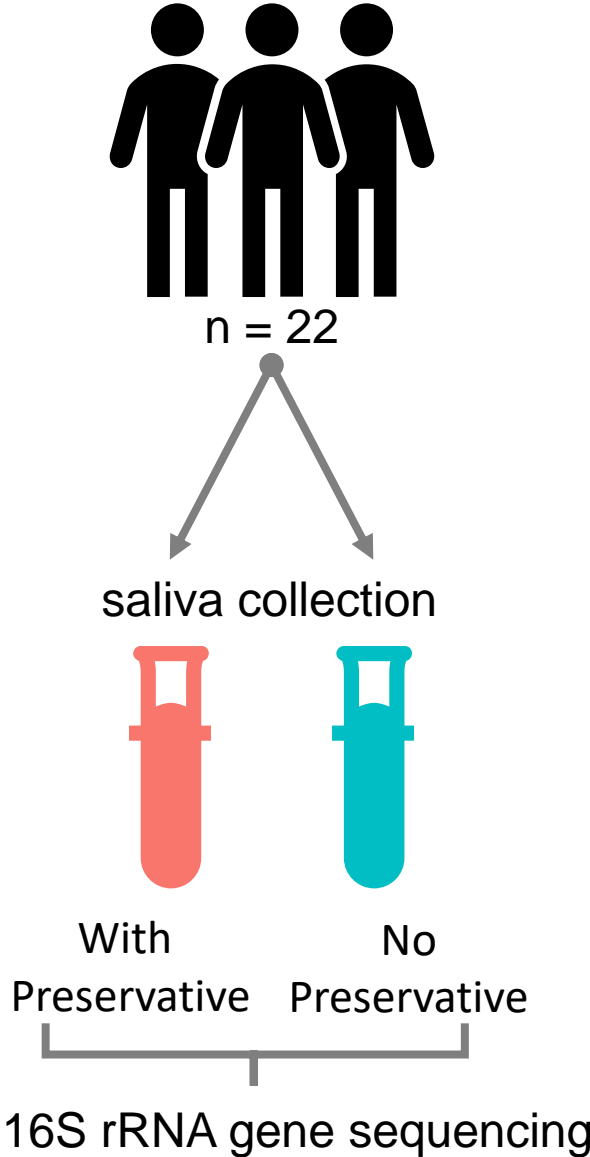
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- **Saliva microbiome – methods and concepts**

How do we measure the microbiome?

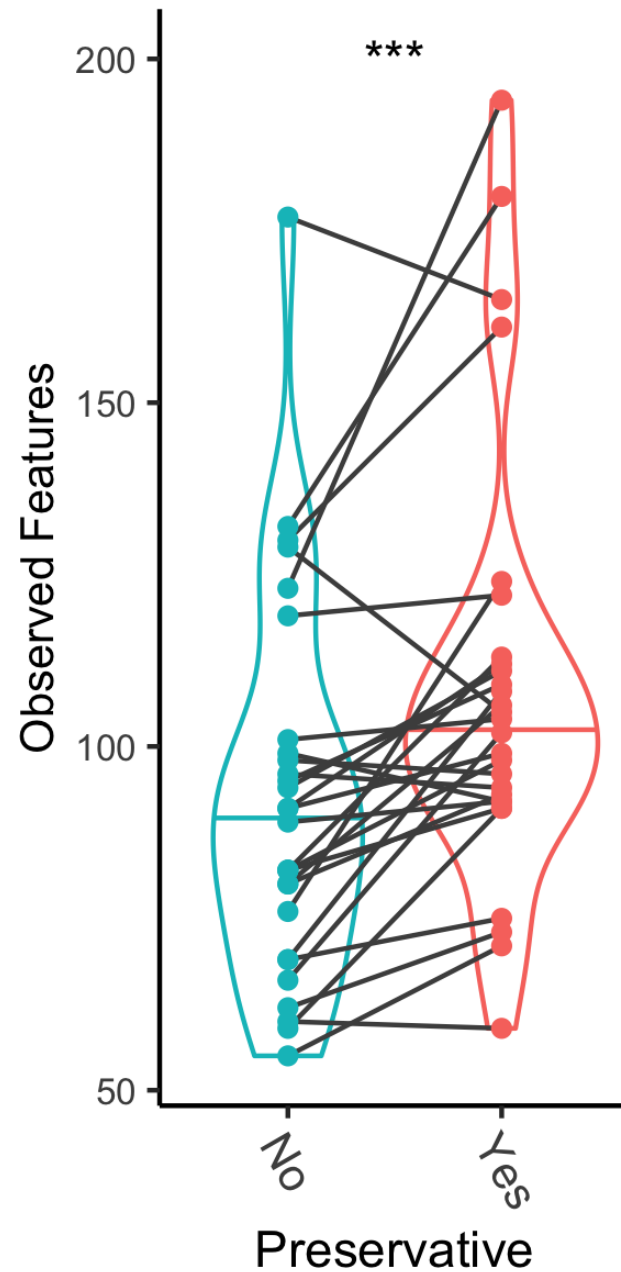
Who's there?



Saliva microbiome – how collection method impacts microbiome measurement

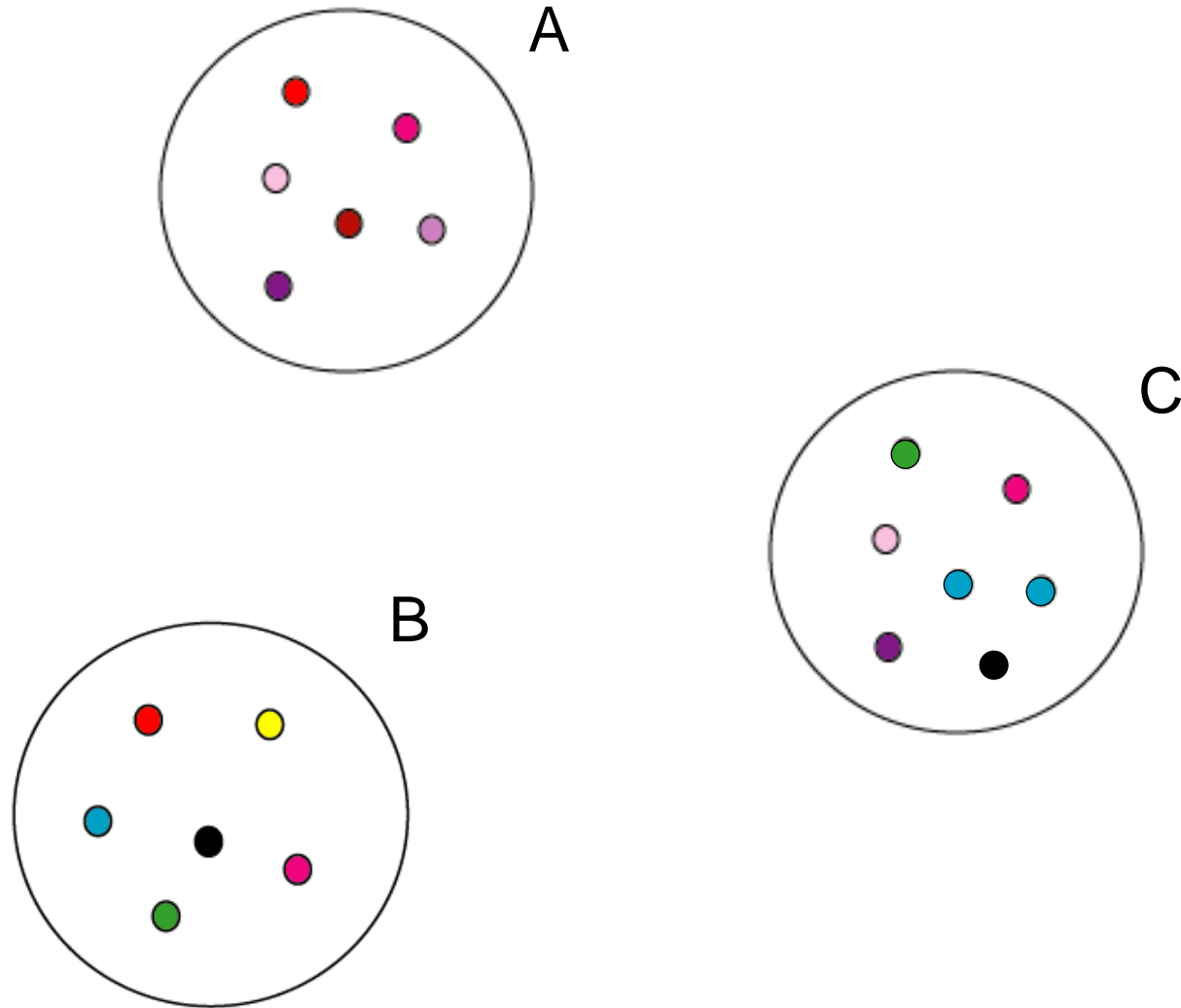


Number of "species equivalents" in the saliva microbiome

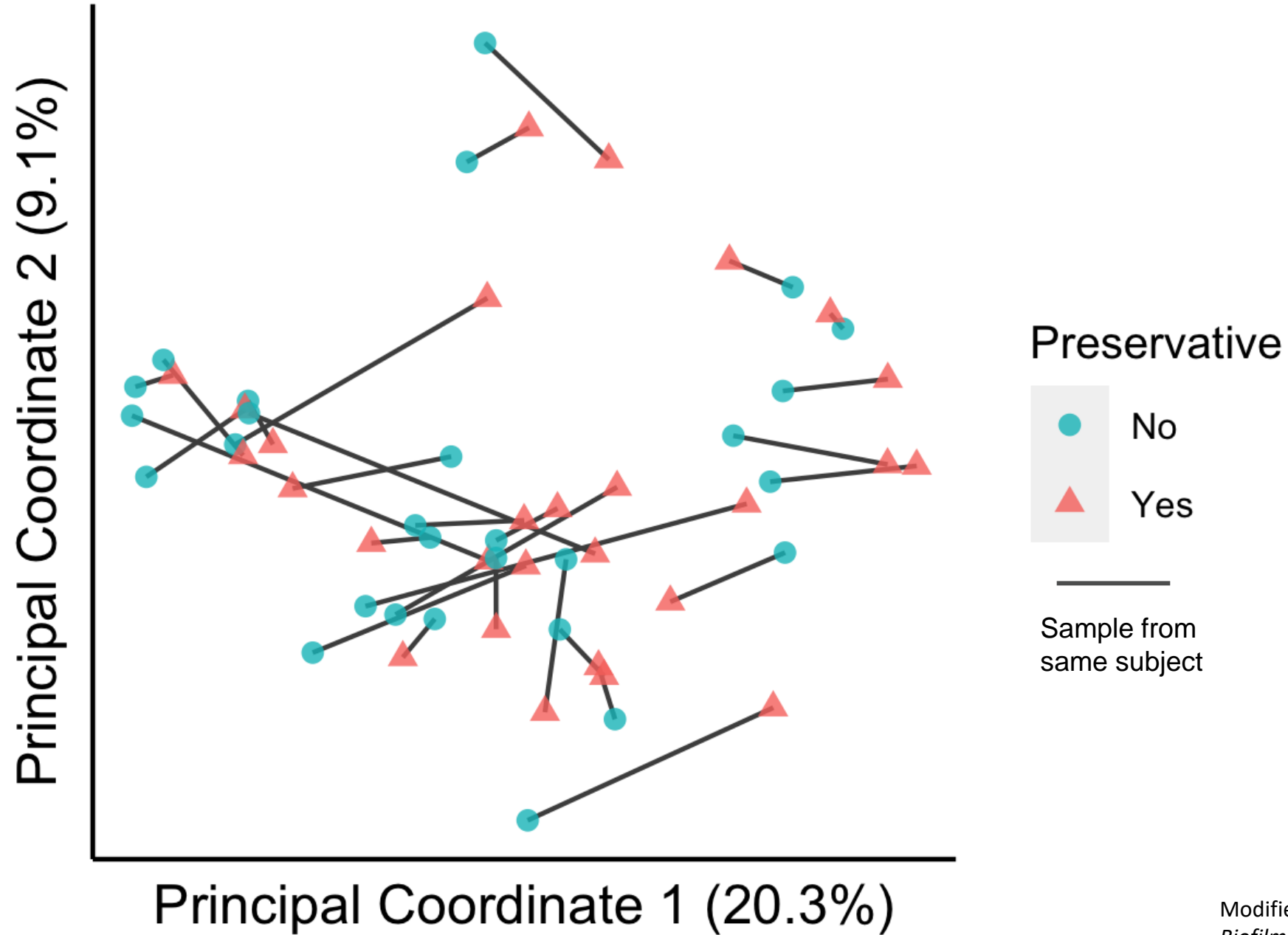


** $p < 0.01$
*** $p < 0.001$

Comparing whole microbial communities



Comparing whole microbial communities



Concluding thoughts


- The microbiome consists of more than just bacteria and exists where our bodies have "outside" exposure
- The oral microbiome impacts health beyond the mouth – colonizing other body sites, making products, and trigger the immune system
- The microbiome is studied through sequencing – "16S" sequencing targets a "fingerprint" gene to tell us who is there
- How we collect and view body sites can change how we view the microbiome there
- Bioinformatics is at the core of how we understand this work.



Acknowledgements



Martin Blaser, MD

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