Lectures 1 & 2

- MOUTH MICROORGANISMS:
  - EUKARYOTIC → PROTOZOA & FUNGI
  - PROKARYOTIC → BACTERIA (facultative, microaerophilic, or anaerobic... few obligate aerobes)
  - ARCHAEA → PERIO POCKETS & INFECTED PULP CHAMBERS

* MOUTH NICHES: PLAQUE, TONGUE CRYPTS } MICROORGANISM (large SA) COMMUNITIES!! → PROTECTED FROM: 1) SALIVA FLUSHING 2) EPITHELIAL SHEDDING

SUPRA-G
- ★ facultative & microaerophilic BACTERIA
- ★ GRAM + STREP, LACTOBACILLUS, ACTINOMYCES
  - ↳ cause CARIES
- ★ NRG = CARBS
- ★ FIRMLY ADHERENT TO PLAQUE
- ★ pH = SLIGHTLY ACIDIC

SUB-G
- ★ facultative & AEROBIC BACTERIA
- ★ GRAM − RODS & SPIROCHETES; TREPTONEMA, FUSOBACTERIUM
  - ↳ cause PERIO DISEASE & ENDO INFECTIONS
- ★ NRG = PROTEINS
- ★ MANY MOTILE FORMS
- ★ pH = SLIGHTLY BASIC

- DEEP PERIO POCKETS = ↑↑ STRICT ANAEROBES
- GINGIVITIS = PLAQUE BIOFILM OVERGROWTH
  - ↳ GRAM + & GRAM −

BIOFILMS
- FIRMLY ATTACHED CELLS (TO EACH OTHER & SURFACES)
- EMBEDDED IN ECM
- ALTERED PHENOTYPE TO GROWTH RATE & GENE TRANSCRIPTION

PROPERTIES:
- COMPLEX, COOPERATING & COMPETING MULTI-MICROORGANISM COMMUNITIES ⟹ MICROCOLONY ARRANGEMENT W/ DIFFERING ENVIRONMENTS
- SURROUNDED & ATTACHED VIA PROTECTIVE MATRIX
- SIMPLE QUORUM SENSING COMMUNICATION
- BIOFILMS RESISTANT TO: ANTIBIOTICS, ANTIMICROBIALS & HOST RESPONSE

- AS PLAQUE ↑, O_2 & SALIVA PERMEABILITY ↓ & WASHING ↓
  - ↳ HIGHER CONC. OF TOXINS, ACIDS & INFLAMMATORY BACTERIAL COMPONENTS
  - ↳ LESS AEROBIC = MORE GRAM − BACTERIA = ↑ GINGIVITIS, CARIES, PSEUDOPOCKETS, PERIODONTITIS, LOA

* TRANSIENT FLORA = MICROORGS BROUGHT TO AREA FROM SOMEWHERE ELSE
  - ↳ difficult time COLONIZING SO GONE IN HOURS TO DAYS

FLORA review:
1. NORMAL: do not cause disease
2. OPPORTUNISTS: disease under conditions
3. PATHOGENS: generally cause disease

→ INITIAL COLONIZATION
- fetus in sterile environment → ORAL CAVITY EXPOSED @ BIRTH to VAGINAL MICROORGANISMS
  - → Candida
  - → LACTOBACILLUS
- first weeks of life: soft tissues colonized via kisses
- teeth ERUPT = 4 NEW NICHES!!
  1) pits & fissures
  2) interproximal surfaces
  3) smooth surfaces
  4) gingival tooth interfaces
  - → dental PLAQUE MUST FORM FIRST & intial colonizers must adhere well to tooth surface / pellicle
    - → S. salivarius (not enamel dependent)
    - → S. sanguinis & S. mitis = pioneer species
      - provide sites for secondary colonizers
  - → STREP MUTANS colonizes when 2ND MOLARS ERUPT
    - stable by 2y. but still changes w/ major life changes