

POLYSACCHARIDE CHAINS

↳ most bacteria produce

- extracellular
- non-branched
- soluble

chains

↳ Strep Mutans G-T produces

- extracellular
- branched
- insoluble

chains

FORM A PROTECTIVE
ECM dome over
PLAQUE BIOFILM &
LOCALIZES ACID PRODUCTION

VJ

SUCROSE IS KEY TO CAVIES DEVELOPMENT

- ↳ plaque bacteria are able to rapidly use sucrose for energy & store some for later
- High fluoride concentrations can poison glycolytic (LA) pathway & wound S. mutans

* BACTERIAL SUCCESSION:

↳ = the result of the pH of an environment strongly affecting metabolic production

↳ succession occurs bc each bacterial strain has a limit to its ability to grow at a low pH and has a limited acid-producing capacity at lower pH conditions

Cavies treatment ideas

- caries vac
- replacement therapies
- probiotic therapies
- STAMP

* STEPDOWN CURVE → Rapid & Sustained pH drop in plaque biofilm due to fermentable Dietary Carbs

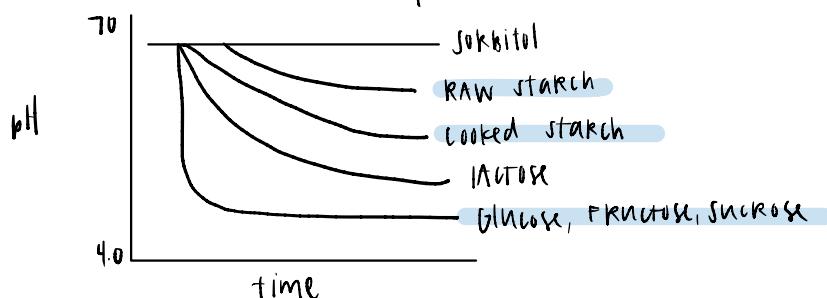
↳ comes w/ glucose "feed"

↳ plaque associated w/ rampant cavies start @ much lower resting pH than healthy plaque on a caries free tooth

- the presence of plaque is required to produce a pH at or below the critical value!
- by brushing teeth → Acid ↓

- plaque bacteria can utilize highly processed carbs & simple sugars much more effectively than complex carbs

↳ NOT all carbs created equal:



* Milk & cheese (w/ Lactose) is not cariogenic because the calcium ↓ cariogenicity (very little sugar due to fermentation)

* FREQUENCY OF SUGAR CONSUMPTION must make important than the amount!!

↳ also better to eat w/ meals than between meals → Avoid grazing

SALIVA

→ = watery secretions of [parotid] [submandibular] [sublingual] salivary glands + minor oral mucosal glands

REGULATION

- ACTIVATED by Autonomics:

- PARASYMP STIMULATION: copious flow, watery, parotid mainly
- SYMPATHETIC STIMULATION: low flow, thick (mucoid), submandibular & sublingual mainly

- Flow stimulated by:

- TASTE → SOUR, SALT, BITTER, SWEET
- CHEWING → why sour gum works well to stimulate SALIVA
- SIGHT & SMELL OF FOOD
- Food in the mouth

MAJOR FUNCTIONS:

1) AID IN SWALLOWING & DIGESTING → salivary amylase

2) FORMATION OF (ACQUIRED) PELLICLE

- CHARGED salivary proteins (STATHERIN), PROLINE-rich proteins (PRPs) & some MUCINS
- BIND to charged HA of teeth
- provides BINDING site for 1 colonizers (mitis strep)
- * HaltS continuous growth of tooth

3) PROTECTIVE

- FLUSH away CARBS
- Contains Ca^{2+} & PO_4^{3-} for tooth remineralization
- Contains ANTIMICROBIAL AGENTS (lysozyme & Ab-IgA)
- Maintains neutral mouth (BUFFER bicarbonate system)
- SOURCE of recycled topical FLUORIDE

* DRY MOUTH OCCURS IN EVERYONE @ NIGHT!

QUIZZES

① ARCHAEA, PROKARYOTES, EUKARYOTES & BACTERIA all inhabit the Mouth

② ORAL BIOFILMS...

- Lactobacillus first to inhabit in vaginally-born babies
- communicate via quorum
- considered innate immunity

③ SUPRA-G BIOFILM:

- 1 colonizer = mitis streptococcus
- caries caused exclusively by SUPRA-G PLATE BIOFILM

④ HYDROXYAPATITE

- major mineral constituent
- enamel critical pH = 5.5
- composition can be altered
- can spontaneously remineralize after demineralization

⑤ SALIVA (AKA) PROTECTION

- recycled topical fluoride
- chemical buffer (BBS) for neutral
- flushes away CARBS, Acid, etc.
- has microbial Agents

⑥ TOOTH PELLICLE...

- helps colonize
- mainly salivary proteins

⑦ STREP MUTANS

- GROWS IN CHAINS
- Acidogenic, acidophilic, anaerobic
- produces bacteriocins

⑧ S. MUTANS produces LA from

- table sugar
- Fructose
- Sucrose
- Glucose