

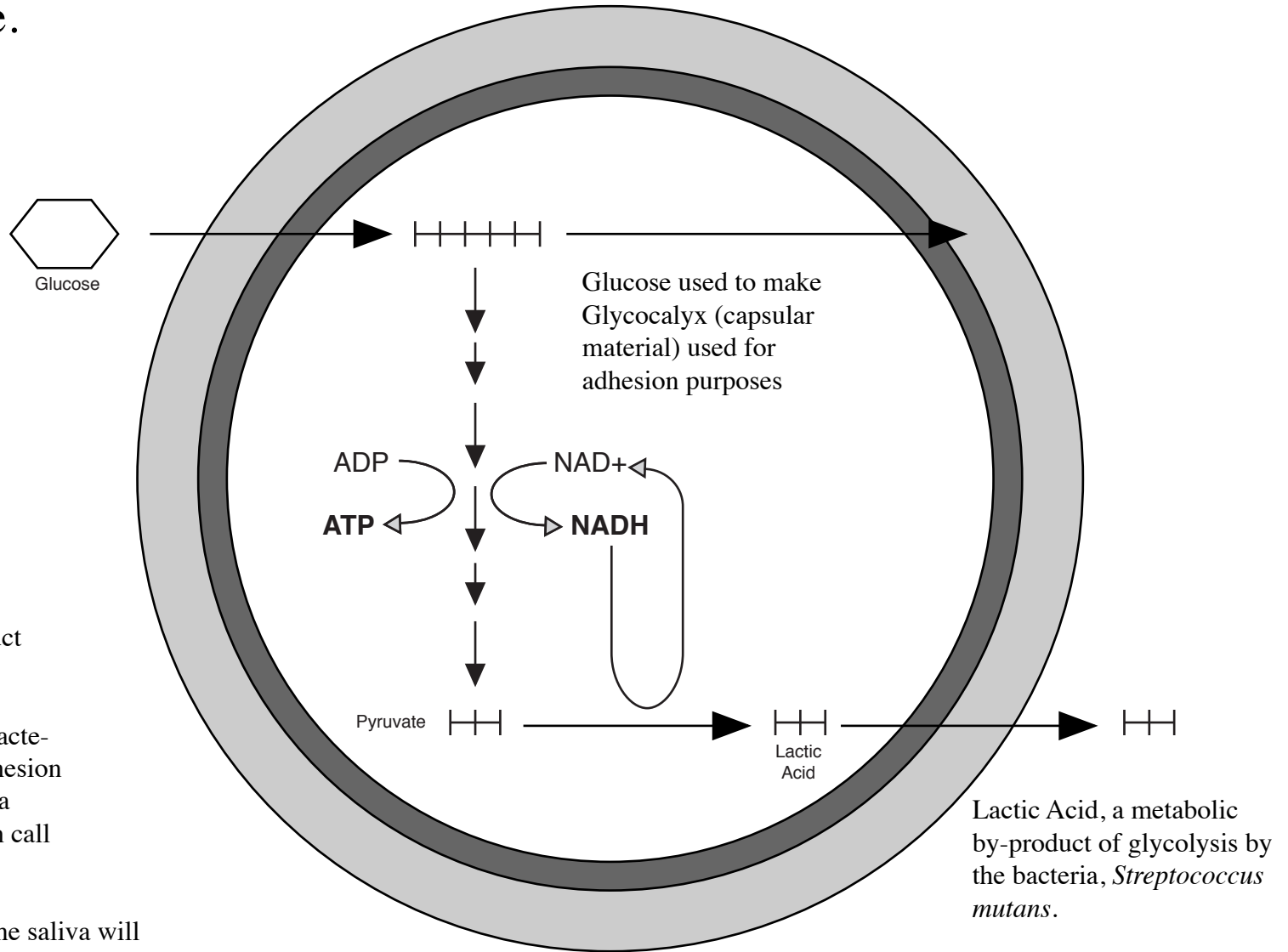
Bacteria of the Mouth and Excessive quantities of Glucose.

Glucose is used by the normal bacterial flora of the mouth for their own metabolic and anatomical needs.

During glycolysis, as ATP is produced, NAD⁺ is reduced to NADH. However, glycolysis will cease if NAD⁺ does not again become available. To accomplish this, NADH reduces pyruvate to lactic acid, and it again takes on its oxidized form of NAD⁺. Lactic Acid is a normal metabolic byproduct of such bacteria and is excreted.

Glucose is likewise used by some bacteria to produce a capsule that has adhesion functions. The capsular material is a polysaccharide and is what we often call "dental plaque".

Normally, bicarbonate ions within the saliva will neutralize lactic acid as bacteria produce it. However, if the bacteria is bathed in inordinate quantities of glucose, a great quantity of capsular material will be formed quickly and this becomes a barrier preventing the bicarbonate from neutralizing the lactic acid. The lactic acid now comes in contact with the teeth and begins to erode them, eventually causing dental caries.



Lactic Acid, a metabolic by-product of glycolysis by the bacteria, *Streptococcus mutans*.