I will discuss the different sources of saliva and the fact that the contributions from the different glands are not well mixed, even when chewing gum is being used. I will then consider the mechanism of salivary clearance and the importance of the unstimulated flow rate and the volumes of saliva in the mouth before and after swallowing as being the main determinants of the rate of sugar clearance from the mouth. I will emphasize that saliva is present in the mouth as a thin film and that the velocity of the salivary film is a key factor in determining the rate of removal of acid from dental plaque. I will discuss the factors influencing the depth and duration of the Stephan curve and the role of saliva and the acquired enamel pellicle in protection against abrasion, attrition, erosion and dental caries. I will discuss the concept of a critical pH below which caries and erosion will tend to occur and above which calculus deposition and remineralization of early caries lesions will tend to occur. I will also discuss the important buffers in saliva and the circadian rhythm in salivary flow rate, which influences the optimum time for oral hygiene procedures. Finally, I will discuss the effects of chewing gum on salivary flow rate and composition and its possible beneficial effects on oral health.