In this talk I will present some general information about dental hard tissue and its optical properties. These properties allow controlled laser ablation of various dental hard tissues resulting in some unique aspects that render the resulting treated surfaces more resistant to acid attacks. In addition, there are spectral regions where laser ablation can be very tissue-specific allowing ablation of dental calculus (the stuff that dental hygienists scrape off your teeth) without detrimentally affecting the underlying healthy tissue. Some of these laser applications are about to enter the dental clinic while others still await further improvements.