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# Lecture Title

The Bio-Emulation protocols

## Abstract

Understanding light interaction with tooth structures as well as proper histo-anatomic principles is essential for a better material and shade selection strategy during restorative procedures.
Tooth structures form a complex optical medium for light as it passes through enamel, dentin-enamel junction and dentin. Furthermore, this behaviour changes over the years, as tissues change in morphology and composition. The Bio-Emulation approach as written in structural analysis and visual synthesis defined the new bases to consider for replication of natural tooth structures with dental materials. The penta_laminar concept represents the ultimate implementation of this philosophy: analysing different ageing stages to build a dynamic shade concept that adapts to nature. However, feasibility of application of this concept is compromised by it's intrinsic complexity, not accesible to all clinical conditions. By analysing the key factors of natural structure's ageing process and applying this knowledge to the material selection, it is possible to simplify techniques to make them approachable in all situations. From a bi-laminar technique to the penta_laminar technique we can learn to adapt our work in order to optimise the clinical outcome achieving cost-effective treatments to cover our patients needs and expectations.

Defining proper shade selection strategies for both composites and ceramics is of paramount importance for our daily work. The Bio-Emulation approach provides specific tools designed to increase dramatically the accuracy of our shade matching, including the custom_eyes shade tabs as well as the "state of the art" eLAB protocol for ceramics.

Ultimately, a successful treatment will always be the outcome of a good communication with patient and perfect teamwork between dentist and technician.