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Dental Materials by Pendragon Health

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Introduction

Tremendous improvement has been made on materials used in cosmetic dentistry. Modern materials are safe to have in the mouth, strong, give strong bonds, set quickly, have shades similar to that of the enamel or can be made invisible. Technological advancement in materials for bridges and crowns has had the fastest improvement. The materials used in cosmetic dentistry are porcelain, resins, plastics and metals.

Porcelain

Materials used for dental porcelain are glass, plastic and ceramics. They are used to make veneers, crowns and bridges. Use of ceramics has become more popular than other materials. The ingredients have been selected and modified to give adherence, strength and appearance close to that of enamel. Modern ceramics can be mixed to match the appearance. They can be made to match the shades of natural teeth at different stages of aging. They can also be made very strong to last lifetime with minimum or no maintenance.

Resin

Resin cement is used to stick the porcelain to the original tooth structure. They enable the industry to utilize crowns and benefit from their strength and esthetic properties. Crowns are safely and reliably bonded to the original teeth. Fixed bridges are created and bonded to function and look exactly like the original teeth.

Metals

Metals used in cosmetic dentistry are cast gold, zirconia. Porcelain used in bridges used to be brittle due to high concentration of glass particles. Metal was added to increase strength. An example was cast gold having porcelain facings. Some of the brands were Lava, Empress and e.max. The disadvantage of including the metal was that translucence of the porcelain was decreased and it did not resemble natural teeth. Better core materials for crown are currently being used. They are glass-infused ceramic cores such as zirconia, spinel and pure alumina. The high proportion of refractory crystalline they contain makes them resemble natural teeth. Metals are also used as fillings. Titanium is the preferred metal for fillings.

Porcelain Fused to Metal

It is used to make crowns and bridges. The metal core is covered by a layer of feldspatic porcelain and is invisible. Such restorations have less aesthetic value than as all porcelain ones. They are used where more strength is required such as after root canal treatment and long-span bridges.

Empress Glass Ceramics

Crowns and veneers are made from empress glass ceramics. The ceramics are made to have physico-mechanical properties similar to those of natural enamel. Such properties are thermal expansion coefficient, hardness and modulus of elasticity. Glass is a rapidly under cooled liquid. Its structure is non-crystalline and amorphous. When molten glass is slowly cooled, crystals are formed. Glass ceramics are made by controlled crystallization of raw glass. During this process of

forming the ceramic, some types of crystals get embedded in vitreous phases. Empress is made of crystals embedded in a vitreous phase. Many leucite crystals are held together by the glass matrix. Empress glass ceramics have better mechanical properties because stress is evenly spread in the vitreous phase due to the high leucite crystals shrinkage. The leucite crystals prevent spread of micro-cracks in the glass matrix. They have a mean diameter of about with 3 micrometer. The ceramics is as resistant to wear as enamel. The fine-grain structure gives the glass ceramic its high resistance to abrasion.

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Pendragon Health - About Author:
Pendragon Health, a leading a Cosmetic Dentistry London clinic, is situated in London, UK. We have an excellent team of cosmetic dentists who provide the highest level of patient care.

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