

65. Gingival tissue response around implant abutment made of different materials

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When a transmucosal component is inserted into a tissue, it gets into contact with body fluids, and subsequently multiple events are triggered. Fluid components such as lipids, carbohydrates and proteins adsorb to the material surface and serve as extracellular matrix (ecm) for cell adhesion. Although the influence of material properties on subsequent tissue response is not yet fully understood, it is widely

documented that surface features can affect the amounts and types of bound proteins, as well as their conformation, orientation and binding strength. (wang et.al., 2014) the reaction of cells and tissues to implanted foreign bodies depends on the material's properties and its behavior upon contact with the body fluids. Raisanen et al.(2000) studied, in vitro, how epithelial cells attach to five different dental material surfaces (titanium, ti6al4v titanium alloy, dental gold alloy, dental porcelain and aluminium oxide). The efficacy of adhesion was evaluated by sem and immunofluorescence microscopy with antibodies to vinculin and α 6b4 integrin. Epithelial cells adhered and spread more avidly on metallic surfaces (c.p. titanium, ti6al4v titanium alloy, dental gold alloy) than on ceramic surfaces (dental porcelain and aluminum oxide). Well-organized focal contacts and pre-hemidesmosomes were found on metallic surfaces, but not on porcelain and aluminum oxide. Titanium and zirconia are two most commonly used materials in the fabrication of implant abutments. Biological properties of zirconia implants seem to be comparable to titanium implants (wenz et al.,2008). Recent animal study showed that collagen fiber orientation is similar around titanium and zirconia implant necks (tete et al., 2009).

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