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### Abstract

Metallic biomaterials have been employed in replacing and reconstructing the structural parts of the human physical structure due to their high mechanical properties, superior biocompatibility, and high corrosion resistance. The most common metallic biomaterials that have been used in implants include magnesium, stainless steel, cobalt-based alloy, titanium, and titanium-based alloy. Hydroxyapatite ( $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ ) is one of the ceramic

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