# Biomaterial types, properties, medical applications, and other factors: a recent review

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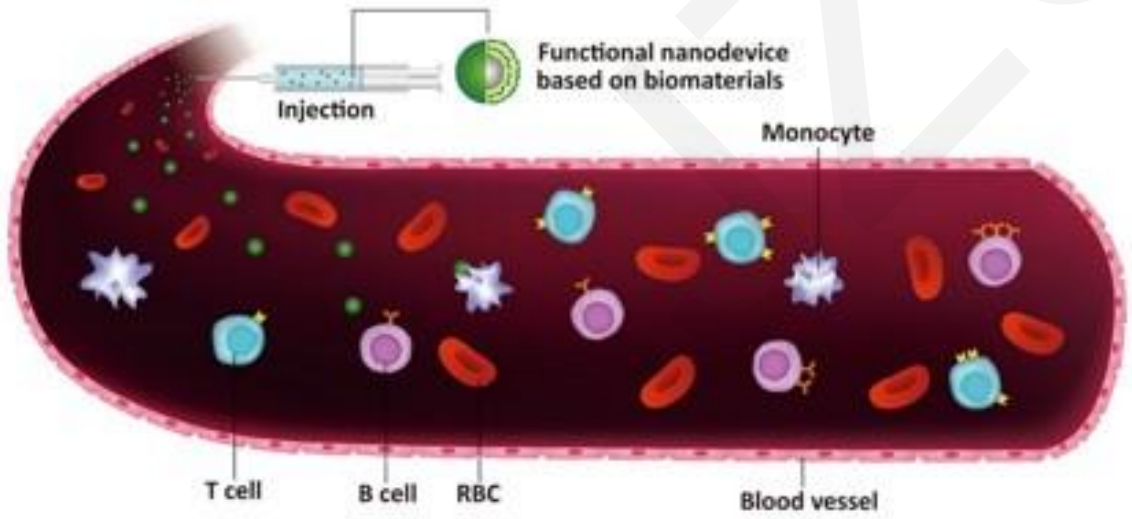
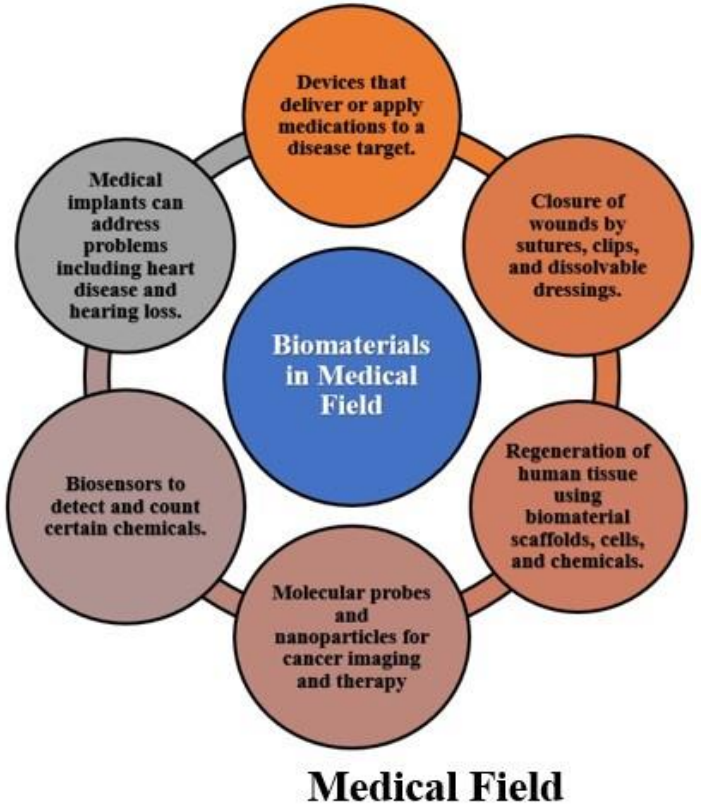
# Purpose of the Study

Purpose of this review is to aid researchers in the selection and assessment of biomaterials. Before using a biomaterial, its mechanical and physical properties should be considered. Recent biomaterials have a structure that closely resembles that of tissue. Anti-infective biomaterials and surfaces are being developed using advanced antifouling, bactericidal, and antibiofilm technologies.



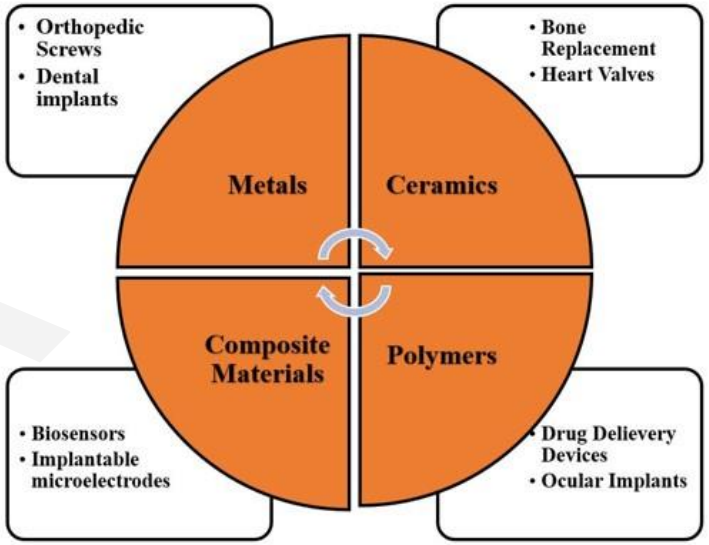

**Toxicity of bioceramic materials in vitro and vivo**



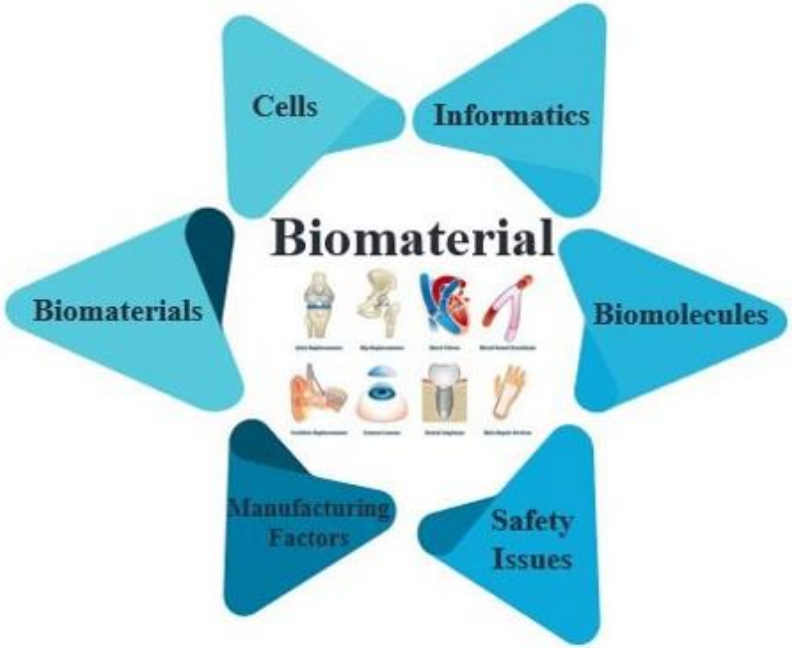

**Medical Field**

# Innovation of the Study

Review tries to cover critical features of biomaterials needed for tissue engineering, such as bioactivity, self-assembly, structural hierarchy, applications, heart valves, skin repair, bio-design, essential ideas in biomaterials, bioactive biomaterials, bioresorbable biomaterials, biomaterials in medical practice, biomedical function for design, biomaterial properties such as biocompatibility, heat response, non-toxicity, mechanical properties, physical properties, wear, and corrosion, as well as biomaterial properties such surfaces that are antibacterial, nanostructured materials, and biofilm disrupting compounds, are all being investigated. It is technically possible to stop the spread of implant infection.



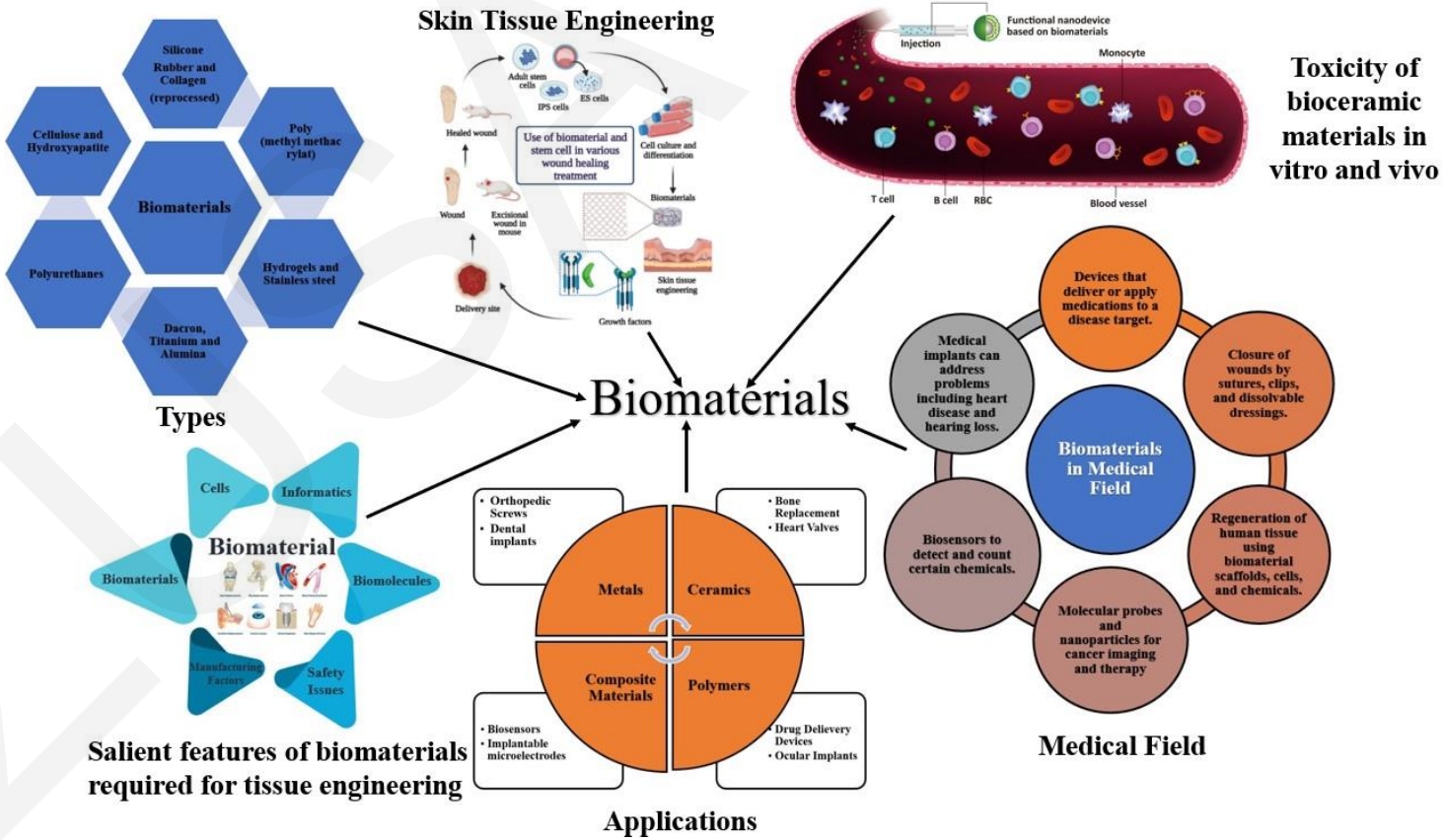

Applications




Salient features of biomaterials required for tissue engineering

# Procedure of the Study

Paper divides into six section where section 1 defines the introduction of biomaterials, section 2 define biomaterials classifications, biomaterial in medical practice and biomaterials designed for function, section 3 define SEM/TEM materials used for bio-applications, section 4 define biomaterials limitations and uses, section 5 define in vitro cytotoxicity concept in biomaterials and section 6 define conclusion and future directions.



# Key Conclusion of the Study

Biocompatibility, bioactivity or surface reactivity, biodegradability, stabilizability, good mechanical and physical features, manufacturability, low weight, affordability, and accessibility are all traits to look for in a material. Molecular and genetic approaches to disease research have led to exciting new developments in diagnosis, treatment, and prevention. A biomaterial is any synthetic material that could be used in medicine. For instance, a biomaterial heart valve replacement could be passive or active.