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# Biomaterials

## An approach towards improvement of machinability of metallic bio materials

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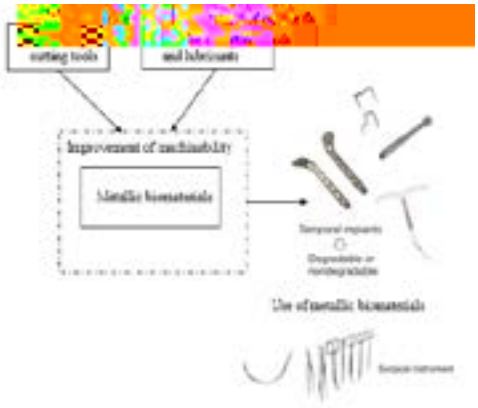
With the invention of new technologies and development of the new materials, wide ranges of materials are made available for their usage in medical applications. ese materials are referred as biomaterials, among which the metallic biomaterials have become an intensive source of interest for the researchers, doctors and surgeons owing to its costs and highly impressive properties. e metallic biomaterials play a predominant role in dental and orthopedic elds as a structural biomaterial in surgeries. Among all the metallic biomaterials Co-based alloys, Ni-based alloys and Ti-based alloys are gaining more popularity owing to their high mechanical strength and fracture toughness. However, utilizing these materials require high degree of machining. In the current study, an e ort has been made towards improving the machinability of Ni-based alloy without making use of any coolant or lubricant during the machining operation keeping in mind the aspect of sustainability. e machinability of the alloy is improved by altering the cutting tool properties and conditions by making use of the mechanical treatment technique i.e. micro abrasive blasting. e process improves the cutting tool performance by altering its surface and sub-surface properties thereby improving the characteristics of machined surface. Dry machining of these metallic biomaterials with the use of altered tools is not only an e ort towards sustainability but also helps in reducing any type of reactive action between the two.



**Recent Publications**

1. Chen Q and ouas G A (2015) Metallic implant biomaterials. Materials Science and Engineering R 87:1–57.
2. Dahotre S N, Vora H D, Pavani K et al (2013) An integrated experimental and computational approach to laser surface nitriding of Ti–6Al–4V. Applied Surface Science 271:141–148.
3. Zhong Z Q, Zhang L, Zhou L, Qiu L C, Shi H D, Yang M L and Zhu J F (2018) Cutting performances and the related characteristics of CVD coated hardmetal inserts changed by post-treatments. International Journal of Refractory Metals and Hard Materials 70:162-168.
4. Resendiz J, Egberts P and Park S S (2018) Tribological Behavior of multi-scaled patterned surfaces machined through inclined end milling and micro shot blasting. Tribology Letters 66:132.

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