

# Medical Device Plating and Metallic Implants for Biomedical Applications

Cássio DN\*

Department of Dental Materials and Prosthodontics, University of São Paulo, Brazil

## Medical Device Plating

Medical device plating is a process of coating a metal surface with a thin layer of another metal. This process is used to improve the biocompatibility, corrosion resistance, and mechanical properties of the metal. The most common metals used for medical device plating are titanium, stainless steel, and aluminum. The most common coatings used are gold, silver, and platinum.

### What is Medical Device Plating?

Medical device plating is a process of coating a metal surface with a thin layer of another metal. This process is used to improve the biocompatibility, corrosion resistance, and mechanical properties of the metal. The most common metals used for medical device plating are titanium, stainless steel, and aluminum. The most common coatings used are gold, silver, and platinum. The process of plating involves the use of an electrolytic cell. The metal to be plated is the cathode, and the metal to be plated from is the anode. The electrolyte is a solution of the metal ions to be plated. The current is passed through the electrolyte, causing the metal ions to be reduced at the cathode and deposited on the surface of the metal.

### Why Use Plating for Medical Implants and Devices?

Medical device plating is used for a variety of reasons. The most common reason is to improve the biocompatibility of the metal. Some metals, such as titanium, are known to be biocompatible, but others, such as stainless steel, are not. Plating with a biocompatible metal can improve the biocompatibility of the device. Another reason for using plating is to improve the corrosion resistance of the metal. Some metals, such as titanium, are known to be corrosion resistant, but others, such as stainless steel, are not. Plating with a corrosion resistant metal can improve the corrosion resistance of the device.

#### Sanitation:

Medical device plating is used to improve the sanitation of the device. Some metals, such as titanium, are known to be resistant to bacterial growth. Plating with a metal that is resistant to bacterial growth can improve the sanitation of the device. Another reason for using plating is to improve the mechanical properties of the metal. Some metals, such as titanium, are known to be strong and durable. Plating with a strong and durable metal can improve the mechanical properties of the device.

#### Biocompatibility:

Medical device plating is used to improve the biocompatibility of the device. Some metals, such as titanium, are known to be biocompatible. Plating with a biocompatible metal can improve the biocompatibility of the device. Another reason for using plating is to improve the corrosion resistance of the metal. Some metals, such as titanium, are known to be corrosion resistant. Plating with a corrosion resistant metal can improve the corrosion resistance of the device.

#### Electrical and Thermal Conductivity:

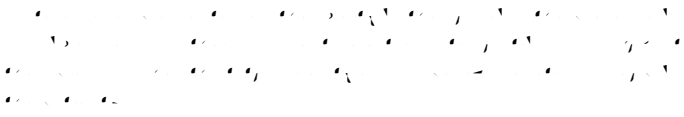
Medical device plating is used to improve the electrical and thermal conductivity of the device. Some metals, such as titanium, are known to be good conductors of electricity and heat. Plating with a good conductor can improve the electrical and thermal conductivity of the device.

**\*Corresponding author:** Cássio DN, Department of Dental Materials and Prosthodontics, University of São Paulo, Brazil, E-mail: cassiodo65@gmail.com

**Received:** 03-Jan-2022, Manuscript No. jmis-22-52599; **Editor assigned:** 05-Jan-2022, PreQC No. jmis-22-52599 (PQ); **Reviewed:** 21-Jan-2022, QC No. jmis-22-52599; **Revised:** 26-Jan-2022, Manuscript No. jmis-22-52599 (R); **Published:** 31-Jan-2022, DOI: 10.4172/jmis.1000125

**Citation:** Cássio DN (2022) Medical Device Plating and Metallic Implants for Biomedical Applications. J Med Imp Surg 7: 125.

**Copyright:** © 2022 Cássio DN. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



## References

1. Augat P, von Rüden C (2018) Evolution of Fracture Treatment with Bone Plates. *Injury* 49:S2-S7.
2. Madey SM, Tsai S, Fitzpatrick DC, Earley K, Lutsch M, et al. (2017) Dynamic Fixation of Humeral Shaft Fractures Using Active Locking Plates: A Prospective Observational Study. *Iowa Orthop J* 37:1.
3. Choi J, Lubner SD, Natesan H, Hasegawa Y, Fong A, et al. (2013) Thermal Conductivity Measurements of Thin Biological Tissues Using a Microfabricated 3-Omega Sensor. *J Med Device* 7:020944.
4. Morabito K (2013) Radiopaque Medical Devices Improve Patient Safety. *J. Clin. Eng* 38:175-177.
5. Niinomi M, Nakai M, Hieda J (2012) Development of New Metallic Alloys for Biomedical Applications. *Acta Biomater* 8:3888-3903.