Definitions of Titanium
By: Timothy Goh

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Introduction:

The following assignment defines the word "titanium" in varying levels of details through the use of parenthetical, sentence and expanded definition. This assignment is intended to help non-technical readers with little to no scientific background understand the word "titanium".

Parenthetical Definition:

Titanium (a strong, light-weight, greyish metallic element) is frequently used in medicine to repair fractures.

Sentence Definition:

Titanium is a metal with an element number of 22 on the periodic table and is abbreviated with the chemical symbol (Ti). Titanium is one of the most biocompatible metals in the field of medicine because of its ability to fuse with human bones.

Expanded definition:

How did its name originate?

The word "titanium" comes from the Greek Word *Titan*, which literally means pertaining to the Titans. Titans, in the ancient Greek mythology, were a group of God-like giants. They were born to primordial deities *Gaia* and *Uranus*, a personification of the Mother Earth and the later Father Sky. The titans were eventually overthrown by their own children, the Gods of Olympian. Titan was used as the name for the mineral because of its strength.

How is it used?

Titanium is used in a number of industries such as the aerospace, automotive, architecture and the medical world. It is of value and is applicable to many industries due to properties such as corrosion resistance, a high strength-to-weight-ratio and its biocompatible nature. Due to its importance, titanium is mostly used in mission-critical applications and appliances to minimize the margin of error.

Applications of medical grade titanium

Titanium is the only known metal able to bond with the body's natural bone and tissue. This allows it to anchor firmly to the body. Titanium is most commonly used in hip, knee and dental replacement surgeries. In dentistry, using titanium as the base of dental implants provide the strongest foundation for replacement teeth (Figure 1).

Figure 1. **Titanium dental implant**
Source: Dentist in Goa via Flickr, http://www.supraalloys.com/images/medical-titanium-dental-implants.jpg

Benefits of medical grade titanium

Titanium is the perfect choice of metal in surgery due to the following characteristics:

- high-strength-to-weight ratio
- bacteria resistant
- non-magnetic property
- cost-efficient
- durable and long lasting

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