



## Zirconium a Cost Effective with Durable and Natural look Dental Crown

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### ABSTRACT

Based on the Ph.D studies on ZA-27 (an alloy, developed by Canadian organization of Naranda Mines Ltd.), subjected for physical (cryogenic) and chemical (gypsum) treatments, was analysed for different mechanical properties (physical, chemical, bio-physical and bio-chemical as applicable to dental crowns/hard tissue bioimplants. (Presented and published elsewhere). Thanks to its extreme durability and natural look , Zirconia crown is getting more and more popular. Zirconium is becoming one of the most chosen materials for dental crowns . Its many advantages include , extraordinarily tough, can withstand wear and tear, translucent enough to be similar to natural teeth, less tooth removal, no Metal fuse, modifiable size, shape and color, biocompatible. The aesthetic effects alone of a Zirconia crown should be the biggest advantage it can give. It is important that you have dental crowns that will look natural especially if it will be placed at the front teeth and will be visible beside the natural teeth. The capacity of zirconium to be modified according to the set of teeth it will be placed alongside which is very important. Zirconium crown will not only replace a tooth but it can be shaped so that it will look better than the one it will be replacing. This is why you can spot that perfect natural looking smile anytime. Zirconia manufacturers are now producing and designing dental crowns custom milled from solid block of the material and baked at ultra high temperatures to ensure that the finished crowns are almost indestructible. The fact that this material is biocompatible means that it is safe to stay within your mouth for a long time. There is no need to worry about any adverse / allergic reactions from your body because it is not rejected by the human body. It is a fact that gold/silver(metal)\_crowns have been used by many people for so many years and it is well tolerated by the body. But it is still better to be able to show that natural effect when you smile. Add the fact that gold/silver are metals and some people just do not like having metals in their internal parts. Zirconium crowns are definitely more robust than porcelain crowns. They last longer too, compared to porcelain that chip and break. Porcelain crowns also need to be fused to a metal base and the metal is that black unsightly line above the gums of people with porcelain crowns (aesthetic). Since Zirconium crowns are milled from a chunk of crystal, they are guaranteed to be at least 5 times stronger than porcelain and its metal fuse. Zirconium crowns also provide strength without that bulky appearance that porcelain is so known for. One of the disadvantages of zirconium crowns is that they are so hard that most dentists still prefer the gold crowns. Another disadvantage is that, although the crown itself will be almost indestructible; the decay underneath it caused by the abrasion of the hard material against the other teeth is not noticeable until the crown falls off. Zirconium is the most expensive type of dental crown. Unfortunately the increased durability, the natural look and biocompatibility comes with a

price tag. Roughly prices in the United States are around \$1000 per unit and around £600 per unit in the UK being imported @ \$200/£130 by native dentists . By choosing appropriate preparation method, weakly agglomerated powders with fine particle size can be obtained. The zirconia part of nano-composite powder was transmitted to partially stabilized zirconia after the use of stabilizer.

***Keywords-Zirconium, dental crowns/implants, Cost/ Benefit ratio, Aesthetic , Nano zirconium .***