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Editorial

Additive Manufacturing: The Current Scenario!!

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In the past few decades, there has been a tremendous change in various technologies used not only in medicine but also in dentistry. Recently, a number of technologies have flooded thereby revolutionizing the dental world.

The use of additive manufacturing (AM) or layered manufacturing technologies in industry is growing keeping in view the areas in which they can be successfully applied. Not only dentistry, even in the medical field, this technology has done wonders and still doing.

But there is no such formal education or training or to particularly teach students about the concept of such beautiful technologies. In that sense, definitely the skills are also affected. This can also be proved by the fact that there is a very limited data or literature review in relation of teaching students regarding the technology and even how these technologies work properly. So, two very important questions arise that how and where can we use additive manufacturing technology?

Additive manufacturing is defined by the American Society for Testing and Materials (ASTM) as "the process of joining materials to make objects from 3D model data, usually layer upon layer, as opposed to subtractive manufacturing methodologies." In earlier times and even now, methods like CAD CAM which helps to design and mill the prosthesis by means of subtractive manufacturing were preferred. It was only after the advent of additive manufacturing technology that the use of CAD CAM was later discouraged.

Additive manufacturing or 3D printing or Rapid Prototyping (RP) has been known by a number of different names. During the course of time, additive manufacturing is becoming an alternative to subtractive manufacturing i.e. CAD CAM not only in medicine but also in dentistry. There has been tremendous research going on in this particular field.

Keeping in view the additive or layered process for manufacturing, it has been seen that there is a lot of material being saved during the milling process unlike the CAD CAM process where quite a lot of material is spend recklessly. The passive nature of layered manufacturing also helps to prevent wear of the milling machines during the course of milling (often seen in subtractive milling machines).

A number of limitations of this technology have also been observed in terms of the steps being used in fabrication of a particular prototype, equipment, technicalities, cost and even difficulty in fabrication of materials like ceramics.

Since, the limitations are not much significant compared to the advantages or areas where this technology is successfully, it's always encouraging to use the additive manufacturing technology over subtractive manufacturing. The only matter of concern is the formal training to the students regarding these technologies. It is rather better to incorporate these technologies in various dental schools and universities of our country although majority of the countries has already started with the education & training related to this filed. Infact, more research projects can also be done in relation to this field so that the overall level of education and skill to use such technicalities can be improved. Furthermore, a lot of research is still needed to prove its effective use in both medicine and dentistry.

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