CAD/CAM EDUCATION IN DENTAL MEDICINE COURSES OF PORTUGAL AND SPAIN

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ABSTRACT

Aim: to analyse how CAD/CAM technology is included in the dental education curricula of dental schools in Portugal and Spain. Methods: a survey was distributed by e-mail to all Professors of Prosthodontics in Higher Education Institutions of Dental Medicine in the Iberian Peninsula. Response rate was 48% (total: 12 institutions). Results: CAD/CAM technology is covered in the training of future Dentists in the Iberian Peninsula, although at a reduced level. Most of students have access to CAD/CAM systems, within the Institution. However, in Portugal it is used only in specific situations, while in Spain it is used more routinely. The most common CAD/CAM materials used in Portugal are lithium disilicate, zirconia and metals. In Spain, it is also used alumina, leucite, feldspathic ceramics and composites for indirect restorations.

Although CAD/CAM technology is taught in different graduation levels in Dentistry, it is considered that Portuguese and Spanish graduation level students are not able to use it without additional training. In a post-graduation level, there is a difference between students in both countries.

Keywords: education, dental, computer-aided design, prosthodontics, dental materials.

INTRODUCTION

Computer-aided design (CAD) and computer-aided manufacturing (CAM) have become an increasingly popular part of dentistry over the past 25 years.(Prajapati, Prajapati, Mody, & Choudhary, 2014) Over this years, CAD/CAM technology has enabled an improvement / optimization in oral rehabilitation, providing new production methods and more resistant materials used in the dental laboratory and in the dental office for different types of dental prosthesis.(Boitelle, Mawussi, Tapie, & Fromentin, 2014)

The technology is composed by three components: a digitalization tool/scanner to capture the form of the tooth, a computer aided design (CAD) software to process data and design the restoration, and a computer aided machining (CAM) technology that transforms the data set into the desired product.(Beuer, Schweiger, & Edelhoff, 2008)

CAD/CAM systems can be classified according to the location where the prosthetic work is manufactured. There are: chairside systems, used in the dental office; laboratory systems, used by the dental technician in the dental lab; and milling centers, that centralize the production of the prosthetic framework, after which it returns to the dental laboratory to finish the prosthetic rehabilitation. (Beuer, Schweiger, & Edelhoff, 2008) The aim of this research
was to analyse how CAD/CAM technology is included in the dental education curricula of dental schools in Portugal and Spain, particularly: course type; subjects where it is included; lectures classification (theoretical, theoretical-practical or clinical); educational level of the syllabus; clinical setting; and Faculty opinion considering Oral Rehabilitation learning.

A survey was distributed by e-mail to all Professors of Prosthodontics in Higher Education Institutions of Dental Medicine in the Iberian Peninsula. Response rate was 48% (total: 12 institutions).

RESULTS AND CONCLUSIONS

CAD/CAM technology is widely covered in the training of future Dentists in the Iberian Peninsula, although, in average, the graduation courses have less than 5 teaching hours, and the post-graduation courses more than 15 hours. Most of students in the university clinic already have access to CAD/CAM systems, within the Institution. However, in Portugal it is used only in specific situations, while in Spain it is used more routinely in a university clinical practice. As for the materials used in CAD/CAM systems, the most common in Portugal are: lithium disilicate, zirconia and metals; in Spain, although these are also the most common used materials, other materials such as alumina, leucite, feldspathic ceramics and composites are also used for the construction of indirect restorations.

Although CAD/CAM technology is taught in different graduation levels in Dentistry, it is considered that Portuguese and Spanish graduation level students are not able to use it without additional training. In a post-graduation level, there is a difference between students in both countries, being that in Spain, 67% consider that post-graduated students are able to use CAD/CAM technology without additional training.

Within the limitations of this study, it may be considered that the teaching of CAD/CAM technology must be optimized, in order to provide our students the tools to keep up with the evolution of dental technologies in the dental practice.

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REFERENCES

