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ORTHODONTIC EDUCATION IN THE UNITED STATES

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Introduction

Orthodontic education is presented to the undergraduate in the dental curriculum and is available to the dentist in graduate and postgraduate programs of long duration or in continuing education courses of short duration. Regardless of the program, the objective is to improve orthodontic knowledge and clinical competence.

Undergraduate Dental Education

The philosophy of undergraduate orthodontic education varies markedly among dental schools. The courses range from a one-year lecture series and no clinical work to lectures and clinical exposure throughout all four years. To date the trend has been to increase the exposure to orthodontics. Most undergraduate programs now include material on growth and development of the cranio-facial complex and development of occlusion for freshman (first year), laboratory technique instruction for sophomores (second year), orthodontic theory lectures for juniors (third year) and seniors (fourth year). The clinical work usually involves diagnostic work-ups and minimal treatment. After a preliminary diagnosis the patient is either referred to the graduate or postgraduate program for comprehensive treatment, treated by the undergraduate student or advised that no treatment is necessary. In general the undergraduates do not treat skeletal malocclusions. Treatment is generally limited to the cases that are of dental origin in which tipping of teeth is required and can be completed within a year. Both removable and fixed appliances are utilized, the problem dictating the choice of appliance. Clinical exposure in most programs is limited generally to the junior and senior years. In this type of program a student may receive 200 to 300 hours of orthodontic instruction over four years, the objectives being to train the dentist to identify occlusal and facial deviations, provide treatment where appropriate, and to refer the individual for specialist care when necessary.

In the future, undergraduate orthodontics will be greatly influenced by current trends in dental education. Specifically, the shortened curriculum and more elective time being considered by many schools will affect the amount of orthodontic education provided. If the shortened curriculum is implemented at a school it could reduce the formal orthodontic course content. On the other hand, if more elective time is available it could permit individual students to enter the specialty of orthodontics earlier or to obtain more orthodontic education for application in other phases of dentistry. However, if the student pursues other subjects during his elective time he would probably receive less orthodontic education.

Another factor to consider in undergraduate orthodontics is the projected role of the general dentist in the future. Hopefully, caries and periodontal disease will be greatly reduced considering the current microbiological research. Therefore, consideration should be given to training general practitioners to the sub-specialty level in the undergraduate program or even allowing specialization at the undergraduate level. The Curriculum II program at the University of California educated orthodontists in this manner for over 30 years, but presently this program no longer exists. For recognition as an orthodontist the American Dental Association's Council on Dental Education now requires that the individual must spend two academic years in an approved program after graduation from a dental school.

Graduate and Postgraduate Education

Graduate and postgraduate orthodontic programs are designed to educate dentists for the specialty practice of orthodontics. These programs are under the purview of the American Dental Association's Council on Dental Education and the individual institution. The educational objectives for either a graduate or postgraduate orthodontic program are "to increase individual knowledge and competence, to encourage creative ability and the capacity for critical analysis, to coordinate orthodontics with other related health disciplines, and to contribute to the growth and stature of the specialty and the profession in the public interest"[1]. To accomplish these objectives it is required that a program should be a minimum of two academic years of full-time residency. The difference between a postgraduate program

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TABLE I
Recommended Basic Courses and Seminars for Graduate and Postgraduate Orthodontic Programs

Growth and development seminars	60 hours
Functional head and neck anatomy	60 hours
Cephalometrics	100 hours
Orthodontic diagnosis and treatment seminars	300 hours
Biomechanical principles and materia technics	60 hours
Oral physiology lectures and seminars	40 hours
Embryology, genetics and applied histopathology	80 hours
Research methodology and biostatistics	40 hours
Research and special studies	Variable hours
Clinical orthodontics	1200 hours
Orthodontic literature seminars	100 hours

and a graduate program is that in the former a certificate of proficiency is awarded at the completion of the program whereas in the latter an advanced degree is awarded in orthodontics or a related field while a certificate of proficiency in orthodontics is earned. The educational and entrance requirements are similar in both the graduate and postgraduate programs. In 1971 there were 51 formal graduate and postgraduate orthodontic programs in the United States.[2] There were 23 graduate programs and 13 postgraduate programs, the remaining programs allowing the student to work for a degree if desired. The total number of positions available in 1970 was 371 (114 postgraduate and 257 graduate). Five new programs are scheduled to begin before 1974.

The duration of programs ranges from 18 months to 36 months with the majority lasting approximately 23 months. These are divided almost equally between public and private dental schools, with two programs based in private hospitals, although associated with Universities.

Presently most University programs do not award stipends whereas the hospital programs provide resident stipends. The University programs may provide financial support through fellowships, loans, and part-time teaching appointments, the level of support varying from institution to institution. Tuition ranges from $150 to $3,000 per year, private dental schools generally being at least twice as expensive as the public dental schools. The cost of equipment ranges from nil to $1,000 for the program. The cost of living varies, as one would expect, the differential between large metropolitan areas and smaller cities being marked in some instances.

Recommended content for graduate and postgraduate programs was approved in 1970 by the American Association of Orthodontist's Council on Orthodontic Education.[1] The recommended basic courses and seminars and the course hours are shown on Table I. In addition, 300 course hours are recommended in such subjects as speech, psychology, pediatrics, anthropology, photography, teratology, auxiliary utilization and interspecialty relationship.

Continuing Education

A wide variety and large number of orthodontic continuing education courses are presented each year. For example, in 1971 there were over 125 continuing education courses in orthodontics. This does not include the courses that were announced in such associated areas as occlusion, photography, and practice management. Usually these courses are specifically designed for either the non-orthodontist or the orthodontist. The courses designed for non-orthodontists are usually for general practitioners; as of late, however, orthodontic courses have been designed for oral surgeons, periodontists, pedodontists, and prosthodontists. Undoubtedly the number of these courses for allied specialties will continue to increase.

Continuing education courses are usually sponsored by dental schools and/or dental organizations, the most successful being jointly sponsored. The courses are announced through various dental publications. Included in the announcement are the pertinent data such as the sponsor, location, instructors, topics, dates and whom to contact for further information.

Educational Opportunities in Orthodontics for Australian Dentists in the United States

Information is available in the Journal of the American Dental Association and the American Journal of Orthodontics on most of the continuing education courses offered each year. Meetings of the National and Regional bodies of the American Association of Orthodontists also offer associated continuing education courses. If the orthodontist desires a more prolonged and detailed educational experience, affiliation with a dental school as an instructor may be considered. Inquiries should be directed to individual dental schools through

the departmental chairman. There are also research opportunities available in dental schools as well as governmental agencies such as the National Institutes of Health.

For general practitioners desiring to obtain an orthodontic education in the United States, a list of orthodontic postgraduate and graduate programs, deadlines for submitting applications, number of students admitted each year, date on which the program begins, duration of the program, and names of departmental chairmen may be obtained from the American Association of Orthodontists, 7433 Delmar Boulevard, St. Louis, Missouri 63130, U.S.A. Additional information on educational programs available to dentists may be obtained from the American Dental Association.[2, 3]

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