

DS205- ORTHODONTICS & DENTOFACIAL ORTHOPAEDICS

1. AIM:

- To train dental graduates as to ensure higher competence in both general and special areas of Orthodontics
- To prepare a candidate for teaching, research and clinical abilities, including prevention and after care in Orthodontics including growth modulation and micro implants.

2. OBJECTIVES:

- Training programme in Orthodontics and dento-facial orthopaedics is structured to achieve knowledge and skill in theoretical and clinical laboratory, attitude, communicative skills and ability to research with understanding of social, cultural, educational and environmental background of the society.
- Have acquired adequate knowledge and understanding of applied basic and systemic medical science, knowledge in general and particularly of head and neck.
- The postgraduates will be able to provide Orthodontic therapy for patients with competence and working knowledge with understanding of applied medical, behavioural and clinical science that are beyond the treatment skills of the general BDS graduate and MDS graduate of other specialities, to demonstrate evaluative and judgment skills in making appropriate decisions regarding prevention, treatment, after care and referral to deliver comprehensive care to patients.

3. KNOWLEDGE:

- The dynamic interaction of biological processes and mechanical forces acting on the stomatognathic system during orthodontic treatment.
- The etiology, patho-physiology, diagnosis and treatment planning of various common orthodontic problems.
- Various treatment modalities in preventive, interceptive and corrective Orthodontics.
- Basic sciences relevant to the practice of Orthodontics.
- Interaction of social, cultural economic, genetic and environmental factors and their relevance to management of oro – facial deformities.
- Factors affecting the long-range stability of orthodontic correction and their management.
- Personal hygiene and infection control, prevention of cross infection and safe disposal of hospital waste, keeping in view the high prevalence of Hepatitis B, HIV and other highly contagious diseases.

4. SKILLS:

- To obtain proper clinical history, methodical examination of the patient, perform essential diagnostic procedures, and interpret them and arrive at reasonable diagnosis about the Dentofacial deformities.
- To be competent to fabricate and manage the most appropriate appliance – intra or extra oral, removable or fixed, mechanical or functional, and active or passive – for the treatment of any orthodontic problem to be treated singly or as a part of multidisciplinary treatment of oro-facial deformities.

5. ATTITUDES:

- Develop an attitude to adopt ethical principles in all aspects of Orthodontic practice.
- Professional honesty and integrity are to be fostered.
- Treatment care is to be delivered irrespective of the social Status, cast, creed or colleagues.
- Willingness to share the knowledge and clinical experience with professional colleagues.
- Willingness to adopt, after a critical assessment, new methods and techniques of orthodontic management developed from time to time based on scientific research, which are in the best interest of the patient.
- Respect patient's rights and privileges, including patient's right to information and right to seek a second opinion.
- Develop attitude to seek opinion from allied medical and dental specialists as and when required.

6. COMMUNICATION SKILLS:

- Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular dento-facial problem and to obtain a true informed consent from them for the most appropriate treatment available at that point of time.
- Develop the ability to communicate with the professional colleagues, in orthodontics or other specialties through various media like correspondence, Internet, e-video, conference etc. to render the best possible treatment.

7. COURSE CONTENT:

- The program outlined, addresses both the knowledge needed in orthodontics and allied Medical specialties in its scope. A minimum of Three years of formal training through a graded system of education as specialties, will equip the trainee with skill and knowledge at its completion to be able to practice basic orthodontics and have the ability to intelligently pursue further apprenticeship towards advanced orthodontics.

8. SYLLABUS DISTRIBUTION:**Paper I: Applied basic sciences:**

Applied Anatomy, Physiology, Pathology, Genetics, Physical Anthropology, Dental Materials, Pathology, Biostatistics, Applied Research Methodology, Applied Pharmacology

Paper II:

Orthodontic History, Etiology & classification of Malocclusion, Dentofacial Anomalies, Child and adult psychology, Diagnosis and Treatment planning and Practice Management.

Paper III: Clinical Orthodontics includes- Myofunctional Orthodontics, Dentofacial Orthopedics, Cleft lips and palate rehabilitation, Biology of tooth movement, Orthodontic/ Orthognathic surgery, Ortho/ Perio/ Prosthodontic Relationship, Basic principle of Mechanotherapy, Preventive Orthodontics, Interceptive Orthodontics, Retention & Relapse.

Paper IV: Essay- Any content of paper-I, paper-II and paper-III.

PAPER-I: APPLIED BASIC SCIENCES**APPLIED ANATOMY**

Prenatal growth of head - Stages of embryonic development, origin of head, origin of face, and origin of teeth.

Post-natal growth of head - Bones of skull, the oral cavity, development of chin, the hyoid bone, general growth of head, face growth.

Bone growth -Origin of bone, composition of bone, units of bone structure, schedule of ossification, mechanical properties of bone, Roentgenographic appearance of bone.

8.1.1.4. Assessment of growth and development - Growth prediction, growth spurts, the concept of normality and growth increments of growth, differential growth, and gradient of growth, methods of gathering growth data. Theories of growth and recent advances, factors affecting physical growth.

Muscles of mastication - Development of muscles, muscle change during growth, muscle function and facial development, muscle function and malocclusion.

Development of dentition and occlusion - Dental development periods, order of tooth eruption, chronology of permanent tooth formation, periods of occlusal development, pattern of occlusion.

Assessment of skeletal age- The carpal bones, carpal X – rays, cervical vertebrae.

APPLIED PHYSIOLOGY –

Endocrinology and its disorders pituitary gland hormones, thyroid gland hormones, parathyroid gland hormones

Calcium and its metabolism

Nutrition-metabolism and their disorders: proteins, carbohydrates, fats, vitamins and minerals

Muscle physiology

Craniofacial Biology: cell adhesion molecules and mechanism of adhesion

Bleeding disorders in orthodontics; Hemophilia

DENTAL MATERIALS

Gypsum products: Dental plaster, dental stone and their properties, setting reaction Etc.

Impression materials in general and particularly alginate impression material.

Acrylics: chemistry, composition physical properties.

Composites: composition, types, properties, setting reaction

Banding and bonding cements: Zn (PO₄)₂, zinc silicophosphate, Zinc Polycarboxylate, resin cements and glass ionomer cements

Wrought metal alloys: deformation, strain hardening, annealing recovery, recrystallization, grain growth properties of metal alloys.

Elastics: Latex and non-latex elastics. 8.1.3.8 Applied physics, Bioengineering and metallurgy.

Specification and tests methods used for materials used in Orthodontics

Orthodontic arch wires: stainless steel, gold wrought, cobalt chromium, nickel alloys alpha and beta titanium alloys.

Survey of all contemporary literature and recent advances in above – mentioned materials.

GENETICS:

Cell structure, DNA, RNA, protein synthesis, cell division

Chromosomal abnormalities.

Principles of oro-facial genetics

Genetics in malocclusion

Molecular basis of genetics.

Studies related to malocclusion

Recent advances in genetics related to malocclusion

Genetic counseling

Bioethics and relationship to Orthodontic management of patients.

PHYSICAL ANTHROPOLOGY:

Evolutionary development of dentition 8.1.5.2 Evolutionary development of jaws.

PATHOLOGY

Inflammation

Necrosis

BIOSTATISTICS

Statistical principles

Data Collection 8.1.7.3 Method of Presentation

Method of Summarizing

Methods of analysis – different tests – errors

Sampling and Sampling technique

Experimental models, design and interpretation.

Development of skills for preparing clear concise and cogent scientific abstracts and publication.

APPLIED RESEARCH METHODOLOGY IN ORTHODONTICS

Experimental design

Animal experimental protocol

Principles in the development, execution and interpretation of methodologies in Orthodontics

Critical Scientific appraisal of literature.

APPLIED PHARMACOLOGY**PAPER-II: DIAGNOSIS AND TREATMENT PLANNING****Orthodontic History**

Historical perspective,

Evolution of orthodontic appliances,

Pencil sketch history of Orthodontic peers.

History of Orthodontics in India.

Concepts of Occlusion and Esthetics

Structure and function of all anatomic components of occlusion,

Mechanics of articulation,

Recording of masticatory function,

Diagnosis of Occlusal dysfunction

Relationship of TMJ anatomy and pathology and related neuromuscular physiology.

Etiology and Classification of malocclusion:

A comprehensive review of the local and systemic factors in the causation of malocclusion

Various classifications of malocclusion

Dentofacial Anomalies:

Anatomical, physiological and pathological and characteristics of major groups of development defects of the orofacial structures.

Child and Adult Psychology:

Stages of child development

Theories of psychological development

Management of child in orthodontic treatment.

Management of handicapped child.

Motivation and Psychological problems related to malocclusion / orthodontics

Adolescent psychology

Behavioral psychology and communication

Diagnostic procedures, Prognosis and treatment planning in orthodontics

Emphasis on the process of data gathering, synthesis and translating it into a treatment plan.

Problem cases – analysis of cases and its management.

Adult cases, handicapped and mentally retarded cases and their special problems

Critique of treated cases.

Cephalometrics

Instrumentation

Image processing

Tracing and analysis of errors and applications

Radiation hazards

Advanced Cephalometrics techniques.

Comprehensive review of literature.

Video imaging principles and application.

Practice management in Orthodontics

Economics and dynamics of solo and group practices

Personal management

Materials management

Public relations

Professional relationship

Dental ethics and jurisprudence

Office sterilization procedures

Community based Orthodontics

PAPER-III: Clinical Orthodontics

8.3. Clinical Orthodontics 8.3.1 My functional Orthodontics:

Basic principles

Contemporary appliances – their design and manipulation

Case selection and evaluation of the treatment results.

Review of the current literature

Dentofacial Orthopedics

Principles

Biomechanics

Appliance design and manipulation

Case selection and evaluation of the treatment results.

Review of the current literature.

Cleft lip and palate rehabilitation

Diagnosis and treatment planning

Mechanotherapy

Special growth problems of cleft cases

Speech physiology, pathology and elements of therapy as applied to orthodontics

Team rehabilitative procedures.

Biology of tooth movement:

Principles of tooth movement-review

Review of contemporary literature

Applied histophysiology of bone, periodontal ligament

Molecular and ultra cellular consideration in tooth movement

Orthodontic / Orthognathic surgery:

Orthodontist' role in conjoint diagnosis and treatment planning

Pre and post-surgical Orthodontics

Participation in actual clinical cases, progress evaluation and post retention study

Review of current literature

Ortho / Perio / Prostho inter relationship

Principles of interdisciplinary patient treatment.

Common problems and their management

Basic principles of Mechanotherapy includes Removable appliances and fixed appliances

Design

Construction

Fabrication

Management

Review of current literature on treatment methods and results.

Applied preventive aspects in Orthodontics

Caries and periodontal disease prevention

Oral hygiene measures

Clinical procedures

Interceptive preventive aspects in Orthodontics

Principles

Growth guidance

Diagnosis and treatment planning

Therapy emphasis on

a. Dento-facial problems

b. Tooth material discrepancies

c. Minor surgery for Orthodontics

Retention and relapse

Mechanotherapy – special reference to stability of results with various procedures

Post retention analysis

Review of contemporary literature

Recent advances like:

Use of implants

Lasers

Application of F.E.M.

Distraction Osteogenesis

Clear aligners

a. History of aligners

b. Technique of aligners

c. Manual aligners

d. CAD/CAM aligners

e. Future of aligners

8.4 PAPER-IV: LONG ESSAY Any contents from 8.1 to 8.3 can be included in essay

9. YEARLY PRACTICAL/CLINICAL SCHEDULE:

FIRST YEAR

PRE – CLINICAL EXERCISES- A general outline of the type of exercises is given here.

General Wire bending exercises to develop the manual dexterity.

Clasps, Bows and springs used in the removable appliances.

Soldering and welding exercises.

Fabrication of removable habit breaking, mechanical and functional appliances, also all types of space maintainers and space regainers.

Bonwill Hawley Ideal arch preparation. As per specification of Tweed or ABO

Construction of orthodontic study models.

Cephalometric tracing and various Analysis and superimposition methods.

Fixed appliance typhodont exercises. One basic technique i.e. standard edge wise or its derivative/ straight wire etc with adequate exposure to other techniques.

Training shall be imparted in Begg technique. 9.1.10 Typhodont exercise

i. Band making

ii. Bracket positioning and placement

iii. Different stages in treatment appropriate to technique taught. 9.1.11 Clinical Photography

Computerized imaging

Preparation of surgical splints, and splints for TMJ problems

Handling of equipments like vacuum forming appliances and hydro solder etc.

Basic Pre-Clinical Exercise Work for the MDS Students

Non-appliance exercises

Sr. No.	Exercise	No.
1	Straightening of wire 6" long	1
2.	Square	1
3.	Rectangle	1
4	Triangle of 2" side	1
5.	Circle of 2" side	1
6.	Bending of U's and V's	1

Sr. No.	Exercise	No.
1.	$\frac{3}{4}$ Clasps	2
2.	Full Clasps	2
3.	Triangular Clasps	2
4.	Adam's clasp –Upper molar	2
5	Adam's clasp –Lower molar	2
6.	Adam's clasp –Pre- molar	2
7.	Adam's clasp –Incisor	2

8.	Modification of Adam's – With Helix	2
9.	Modification of Adam's – With distal extension	2
10.	Modification of Adam's –With soldered tube	2
11.	Duyzing Clasp on Molars	2
12.	Southend Clasp	1

LABIALBOWS

Sr. No.	Exercise	No.
1.	Short labial bow(upper &lower)	1
2.	Long labial bow(upper &lower)	1
3.	Robert's retractor	1
4.	High Labial bow-with apron spring's	1
5.	Reverse loop labial bow	1
6.	Retention labial bow soldered to Adam's clasp	1
7.	Retention labial bow extending distal to second molar	1
8.	Fitted labial bow	1
9.	Split high labial bow	1
10.	Mill's Labial Bow	

SPRINGS

Sr. No.	Exercise	No.
1.	Finger spring–mesial movement	2
2.	Finger spring-distal movement	2
3.	Double cantilever spring	2
4.	Coffin spring	2
5.	T spring	2
6.	Flapper spring	

CANINE RETRACTORS

Sr. No.	Exercise	No.
1.	U loop canine retractor	2
2.	Helical canine retractor	2
3.	Palatal canine retractor	2
4.	Self supporting canine retractor	2

APPLIANCES

Sr. No.	Exercise
1.	Hawley's retention appliance with anterior bite plane
2.	Upper Hawley's appliance with posterior bite plane
3.	Upper expansion appliance with coffin spring
4.	Upper expansion appliance with expansion screw
5.	Habit breaking appliance with tongue crib
6.	Oral screen
7.	Double Oral Screen

8.	Lip bumper
9.	Splint for Bruxism
10.	Catalans appliance
11.	Activator
12.	Bionator
13.	Frankel–FR2appliance
14.	Twin block
15.	Lingual arch
16.	TPA
17.	Quadhelix
18.	Bihelix
19.	Utility arches
20.	Pendulum appliance

Soldering exercise

Sr. No.	Exercise	No
1.	Star	1
2.	Comb	1
3.	Christmas tree	1
4.	Soldering buccal tube on molar bands	1

Welding exercises

Sr. No.	Exercise
1.	Pinching and welding of molar, premolar, canine and Incisor bands
2.	Welding of buccal tubes and brackets on molar bands and incisor Bands

FIRST YEAR – SECOND TERM

Impression of upper and lower arches in alginate

Study model preparation

Model analysis

Sr. No.	Exercise
1.	Impression of upper and lower dental arches
2.	PREPARATION OF STUDY MODEL–permanent dentition analysis to be done.
3.	PREPARATION OF STUDY MODEL–permanent dentition analyses to be done.
4.	PREPARATION OF STUDY MODEL-mixed dentition analyses to be done

Cephalometrics

Sr. No.	Exercise
1.	Lateral cephalogram to be traced in five different colors and super Imposed to see the accuracy of tracing
2.	Steiner's analysis

3.	Down's analysis
4.	Tweed analysis
5.	Rickett's analysis
6.	Burstone Analysis
7.	Rakosi's Analysis
8.	Witt's Appraisal
9.	Mc namara analysis
10.	Bjork analysis
11.	Coben's Analysis
12.	Harvold's Analysis
13.	Cephalometrics for Orthognathic surgical cases
14.	Soft tissue analysis
15.	Soft tissue analysis-Hold away and Burstone

Basic of Clinical Photography including Digital Photography

Light wire bending exercise for the Begg technique.

Sr. No.	Exercise
1.	Wire bending techniques on 0.016' wire circle, Z, Omega
2.	Bonwill-Hawley ideal arch
3.	Making standard arch wire
4.	Inter maxillary hooks –Boot leg and Inter maxillary type
5.	Upper and Lower archwire Stage-I
6.	Bending a double back archwire
7.	Bayonet bends(vertical and horizontal offsets)
8.	Stage –III archwires
9.	Torquing auxillary(upper)
10.	Reverse Torquing(lower)
11.	Uprighting and rotating Spring

Typhodont exercises: (Begg's Tech.)

Sr. No	Exercise
1.	Teeth setting in Class II division I malocclusion with maxillary anterior Proclination and mandibular anterior crowding.
2.	Band pinching, welding bracket sand buccal tubes to the bands
3.	Stage –I
4.	Stage –II
5.	Pre Stage–III
6.	Stage –III

Typhodont exercises: (Edgewise Tech.) Optional

Sr. No	Exercise
1.	Teeth setting in Class II division I malocclusion with maxillary Anterior Proclination and mandibular anterior crowding.

2.	Band pinching, welding brackets and buccal tubes to the bands
3.	Leveling
4.	Anchorage Preparation
5.	Canine Retraction
6.	Consolidation
7.	Detailing and finishing

Other work to be done during FIRST YEAR:

Seminars: Five seminars should be presented by each student each year.

Journal club: Four to Five journal club presentations should be done by each student each year.

Synopsis of dissertation: To be submitted on or before the end of six months from the date of admission. Pilot study should be completed by the end of one year. The dissertation should not be just a repetition of a previously undertaken study but it should try to explore some new aspect.

Pre-Clinical Exercises: To be completed within the six months. On completion of these exercises, student can start taking patients.

Inter-departmental meetings: Should be held once in a month.

Case discussions: Ten to twelve clinical case presentations should be done by each student each year.

Field visits: To attend dental camps and to educate the masses.

Library Thesis: To be submitted by the completion of 1st year.

Basic subject classes

9.1.3.9 Internal assessment or term paper

9. 2 SECOND YEAR- CLINICAL WORK:

Once the basic pre-clinical work is completed, the students can take up clinical cases and the clinical training is for the two and half years. **Each postgraduate student should start with a minimum of 50 cases of his / her own Additional he / she should handle a minimum of 20 transferred cases.**

Removable active appliances

Class-I malocclusion with Crowding

Class-I malocclusion with bi-maxillary protrusion

Class-II division - 1 9.2.5 Class – II division – 2.

Class-III (Orthopedic, Surgical Orthodontic cases).

Inter disciplinary cases

Removable functional appliances cases like activator, Bionator, functional regulator, twin block and new developments.

Fixed functional appliances –

Dento-facial orthopedic appliances like head gears, rapid maxillary expansion.

Appliance for arch development such as molar distalization.

Fixed mechano therapy cases (Begg, PEA)

Retention procedures of above treated cases.

OTHER WORK TO BE DONE DURING SECOND YEAR

Seminars: Five seminars should be presented by each student each year.

Journal club: Four to Five journal club presentations should be done by each student each year.

Dissertation work: On getting the approval from the university work for the dissertation to be started.

Inter-departmental meetings: Should be held once in a month.

Case discussions: Ten to twelve clinical case presentations should be done by each student each year.

Field visits: To attend dental camps and to educate the masses.

Undergraduate classes: Each post-graduate student should handle around 4-5 classes.

The clinical cases taken up should be followed under the guidance. More case discussions and cases to be taken up.

THIRD YEAR

CONTINUATION OF CLINICAL WORK AND ADDITIONAL WORK AS FOLLOWS:

Seminars: Five seminars should be presented by each student each year.

Journal club: Four to Five journal club presentations should be done by each student each year.

Dissertation work: The completed dissertation should be submitted six months before the final examination. Approval of dissertation is essential before a candidate appears for the University examination.

Inter-departmental meetings: Should be held once in a month.

Case discussions: Ten to twelve clinical case presentations should be done by each student each year.

Field visits: To attend dental camps and to educate the masses.

Undergraduate classes: Each post-graduate student should handle around 5 Classes.

The **clinical cases** taken up should be followed under the guidance. More case discussions and cases to be taken up.

Finishing and presenting the cases taken up.

Preparation of finished cases and presenting the cases (to be presented for the examination).

Monitoring Learning Progress a. It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists.

MOCK examination

BOOKS RECOMMENDED:

No.	Title	Author	Publisher
1	An introduction to orthodontics	Laura Mitchel	OxfordUni.P re
2	Begg orthodontic theory and technique	Begg, Kesling	Saunders
3	Biomechanical & Esthetic Strategies incli.ortho	Ravindra Nanda	Saunders
4	Biomechanics in clinical Orthodontics	Nanda	Saunders
5	Contemporary Orthodontics	William Proffit	Mosby
6	Contemporary treat. Of Dentofacial deformity	Proffit, white, sarver	Mosby
7	Craniofacial Distraction Osteogenesis	Mikhail, Jason	Mosby

8	Dental Instruments pocket guide	Linda Boyd	Elsevier
9	Dentofacial deformity	Epker, Wolford	Mosby
10	Esthetic orthodontia & orthodontic surgery	Sarver	Mosby
11	Facial & Dental planning for ortho.& oral surg.	Arnett, McLaugh.	Mosby
12	Invisible Orthodontics	Scuzzo Takemoto	Quintessence
13	Management of TMJ disorder & Occlusion	Okeson	Mosby
14	Micro implant in orthodontics	Jae-Hyunsung	Dentos
15	Ortho. mngt. of dentition with pread justed appli.	Bennet, Mclaugh.	Mosby
16	Ortho. mngt. of uncrowded Cl-II Div.1in children	JohnC.bennett	Mosby
17	Orthodontic concepts and stratragies	Van der Luiden	Quintessence
18	Orthodontic principles and practice	T.M.Grabar	A.I.T.B.S
19	Orthodontic: Current principles and tech.	Grabar, Vanarsdal	Mosby
20	Orthodontics, The art and science	S. I. Bhalaji	Arya
21	Problem solving in orthodontia	Burstone, Marcote	Quintessence
22	Radiographic Cephalometry	Alexander, Jacob	Quintessence
23	Removable Orthodontic appliances	Isaacson, muir	Elsevier
24	Risk Management in Orthodontics	Grabar, Athana.	Quintessence
25	Systemised ortho. Treatment mechanics	M.B.T.	Mosby
26	Textbook of Orthodontics	Bishara	Saunders
27	Textbook of Orthodontics	Gurkeerat Singh	Jaypee Bro.
28	Twin Block functional therapy	Clark, Grabar	Mosby
29	The design, construction and use of removable ortho.appl.(6ThEdition)	Philip Adams	varghese
30	Textbook of Orthodontics- AIPD	M.S. Rani	AIPD
31	Oral health for orthodontic patients	Heintze, Brinkmann	quintessence
32	Clinical Orthodontics	Fisher	Saunders
33	Removable Orthodontic appliances	Grabar, Neumann	Saunders
34	The Alexander discipline	Wick Alexander	Ormco
35	Atlas of advance orthodontics	Anthony D Viazia	Saunders
36	The Tip edge orthodontics	Richard Park house	else vier mosby
37	The orthodontic treatment of impacted teeth	Adrian Becker	informa health
38	Orthodontic materials	Brantley Elides	Thieme
39	Refined Beggs for modern times	V.P jayde	
40	Textbook of anatomy with colour atlas	I. B. singh	Jaypee Bro.
41	Human anatomy vol3	B Dchaurasia	CBS
42	Essentials of preventive and community dentistry	Sobenpeter	Arya(medi)
43	Essential pathology for dental students	Harshmohan	jaypee Bro.
44	Human embryology	I.B.singh	Macmillan
45	Biochemistry	U.Sathya narayan	Books & Allied
46	Anatomy for dental students	Zargar	CBSPD
47	Textbook of human physiology for dental students	Indukhurana	Elsevier
48	Dentalmaterials	PhilipAdams	Anusavice

49	Orthodonticprep.Mannual	Premkumar	Elsevier
----	-------------------------	-----------	----------

JOURNALS RECOMMENDED:

1. Journal of Indian Orthodontic Society
2. American Journal of Orthodontics & Dentofacial Orthopedics
3. British Journal of Orthodontics (Journal of Orthodontics)
4. Journal of Clinical Orthodontics **Mandatory**
5. Angle Orthodontist
6. Seminars in Orthodontics
7. Australian Orthodontic Journal
8. The Cleft Palate Craniofacial Journal
9. International Journal of Adult Orthodontics And Orthognathic Surgery
10. European Journal of Orthodontics
11. Journal of World Orthodontics **Recommended**
12. Korean Journal of Orthodontics