

# International Journal of Research in Health and Allied Sciences

Journal home page: [www.ijrhas.com](http://www.ijrhas.com)

Official Publication of "Society for Scientific Research and Studies" [Regd.]

ISSN: 2455-7803

## Review Article

### Adult Orthodontics - A Review Literature

David W.T<sup>1</sup>, Manu M<sup>2</sup>, Breena R.K<sup>3</sup>, Adit Arora<sup>4</sup>

<sup>1,2,3</sup>Post Graduate Student, <sup>4</sup>Asst Professor, Maharaja Ganga Singh Dental College & Research Centre, Sri Ganganagar, Rajasthan, India

#### ABSTRACT:

Over the period of time there has been an increase in the number of adults seeking orthodontic treatment. Adult treatment varies from the other patients. However, with the increase in the number of adult patients seeking treatment greater availability of information, and analyzed the motivation necessary to seek orthodontic treatment has also increased. The current article highlights the various difference and indication, treatment modalities available for Adult orthodontic treatment.

**Key words:** Adult orthodontic, Adult treatment.

Received: 14 February, 2019

Revised: 24 February, 2019

Accepted: 27 February, 2019

**Corresponding author:** Dr. Sunil Dogra, Department of Prosthodontics, Institute of Dental Sciences Sehora Jammu, India,

**This article may be cited as:** W.T David, M Manu, R.K Breena, Arora A. Adult Orthodontics - A Review Literature. Int J Res Health Allied Sci 2019; 5(2):15-18.

#### INTRODUCTION

The number of adults seeking orthodontic treatment has increased in the recent era. The differences between orthodontic treatment for adults and for the child, is that adult orthodontics is often symptom related, whereas with the child we are largely dealing with signs. Clinically, on examination the adult patients exhibit one or more of the following: deep overbite, large overjet, crowding of incisors, excessive mobility, gingival recession, periodontal pocket, root resorption, and traumatic occlusion. Reitan states that, Adult orthodontics should be based upon a

knowledge of the type of tissue reaction found in adult structures, and that teeth moved in adults are less tipped during the initial movement stage than in young individuals in whom large amount of osteoid tissue still remain.<sup>1</sup> According to Proffit, the increase in the number of adult patients seeking treatment was due to greater availability of information, and analyzed the motivation necessary to seek orthodontic treatment as an adult.<sup>2</sup> Each patients are treated in a different way, the difference between adolescent and adult patient has been given in table-1. The aim of the current article is to highlight about adult orthodontics.

Characteristics	Adolescent Patient	Adult Patient
Growth	Modification Possible	Not possible
TMJ	Adaptable	Sings of dysfunction
Medical History	Not majority with complication	Majority with complication
Periodontal status	Unhealthy rarely	Major concern
Esthetics	Major concern	Major concern
Retention	Short term	Long term
Appliance Tolerance	Less time	More time required
Speech	Adjusts quickly	Adjusts late

TABLE 1 – DIFFERENCE BETWEEN ADULT AND ADOLESCENT PATIENT

## INDICATION

1. Esthetic improvement
2. To facilitate a good tooth-periodontal tissue and tooth to tooth relation.
3. Improve the occlusal plane.
4. To facilitate space for prosthetics replacement.
5. To improve occlusion relation and its co-ordination with the masticatory muscles and the TMJ.

## GOAL OF ORTHODONTIC TREATMENT

1. Parallelism of Abutment Teeth.
2. Most Favorable Distribution of Teeth.
3. Redistribution of Occlusal and Incisal Forces.
4. Adequate Embrasure Space and Proper Root Position.
5. Adequate Occlusal Plane and Potential for Incisal Guidance at Satisfactory Vertical Dimension.
6. Adequate Occlusal Landmark Relationships.
7. Better Lip Competency and Support.
8. Improved Crown / Root Ratio.
9. Improvement (Or) Correction of Mucogingival and Osseous Defects.
10. Better Self – Maintenance of Periodontal Health.
11. Esthetic and Functional Improvement.

## CONTRAINDICATION

1. Skeletal discrepancy
2. Presence of local or systemic disease
3. Alveolar bone loss
4. Poor prognosis
5. Decreased patient motivation

## FACTOR IN SELECTION OF TREATMENT PLAN

### 1.Existing Oral Pathology:

Recurrent decay, restorative failures, root decay with pulpal involvement periodontal bone loss, TMJ symptoms and retained roots. These conditions should be treated first before proceedings to orthodontics with a multi-disciplinary approach.

### 2.Skeletal Relationships:

No growth with minimal skeletal adaptability. Therefore surgical procedures are frequently required to correct moderate to severe skeletal disharmonies.

### 3. Biological Considerations

- **Neuromuscular maturity** – Mechanical options for an adult are limited because of lack of neuromuscular adaptability. There is a tendency towards iatrogenic transitional occlusal trauma, coinciding with orthodontic occlusal changes.
- **Periodontal susceptibility** – Higher degree of bone loss as result of periodontal disease can be evidenced during orthodontic therapy.

## 4.Therapeutic Approaches Available

- **Tooth Movement:** Most of them require tooth moving forces.
- **Orthopedics:** Not effective.
- **Orthognathic surgery:** Needed in 10 to 20% of the adult patients.
- **Restorative dentistry:** Frequently required.

## 5. Extraction (vs) Non Extraction Therapy:

- Atypical extractions are usually undertaken in adults. Atypical extraction patterns vary from extraction of one to four teeth with numerous combinations other than 1st and 2nd premolar.
- Asymmetric extractions and stripping of bulky restorations also done.
- Strategic extractions are extraction dictated by other pathologies like periodontitis or other irreversible damages.

## 6.Anchorage Requirements:

Adults have greater anchorage potential because of completely erupted 1st, and 2nd molars as well as accentuated mesial drift particularly in the mandibular arch. On the other hand 40% of the adult patients are partially edentulous.

- **Direct anchorage** utilizes forces from actual implant which takes the place of a missing tooth and eventually supports a dental restoration.
- **Indirect anchorage** uses the implants to stabilize specific dental units to which clinical forces are then applied.

## 7. Missing Teeth

In adults, most of these spaces cannot be closed without a prosthesis either a temporary tooth replacement during fixed appliance therapy or fixed prosthesis later. Implants have become a reliable alternative. Therefore a multidisciplinary team approach is required for their comprehensive rehabilitations.review article aims at adding lime light to the topic.

## MOTIVATIONS FOR ADULT TREATMENT

The major motivations for adults to undergo comprehensive treatment is due to psychological reasons. Though a small percentage of them may seek complete treatment for periodontal and restorative needs.

- **Internal motivations:** If the individual wants to improve his appearance or function of teeth and so seeks treatment – he is said to be internally motivated and is expected to respond well psychologically.
- **External motivation:** an individual whose motivations is the urging of others he said is to be externally motivated and has a complex set of

unrecognized expectation for orthodontic treatment.

### TREATMENT PLAN

According to Proffit the adult treatment plan comprises of the following. Fig 1

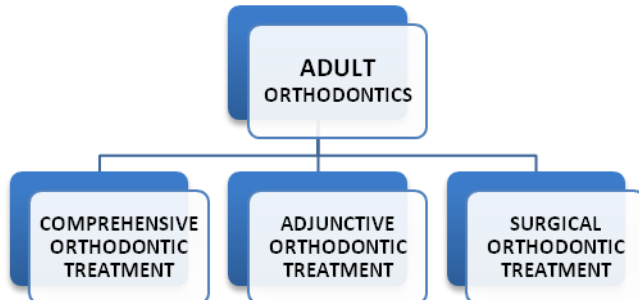


FIGURE 1 – ADULT ORTHODONTIC TREATMENT PLAN

### COMPREHENSIVE ORTHODONTIC TREATMENT

They are similar in adult and adolescence patient however the following criteria are to be kept into concern.

1. Biological limitations.
2. Lower force levels.
3. Periodontal considerations.
4. Multidisciplinary approach.
5. Esthetic requirement.
6. Comfort requirement.
7. Biomechanical consideration.

### ADJUNCTIVE ORTHODONTIC TREATMENT

Tooth movement that is carried out to aid other dental procedures to control disease and restore function.

The adjunctive procedures include the following

1. Uprighting of teeth.
2. Forced eruption.
3. Alignment of teeth.

### SURGICAL ORTHODONTIC TREATMENT

In contemporary surgical-orthodontic treatment, a fixed orthodontic appliance has three uses: to

1. Accomplish the tooth movement needed in preparation for surgery.
2. Stabilize the teeth and basal bone at the time of surgery and during healing.
3. Allow necessary postsurgical tooth movement while retaining the surgical change.

A modern lingual appliance can be used for presurgical orthodontics, as can clear aligners, but in both cases brackets on the facial surface of the teeth must be placed for stabilization and finishing. The standard Begg appliance does not provide the control needed for stabilization, and its tip-edge variant is less than optimal for stabilization.

### Stability

1. Stability is greatest when soft tissues are relaxed during the surgery and least when they are stretched.
2. Neuromuscular adaptation is essential for stability. Most orthognathic procedures lead to good neuromuscular adaptation.
3. Neuromuscular adaptation affects muscular length, not muscular orientation if the orientation of a muscle group such as the mandibular elevators is changed, adaptation cannot be expected.

### CONCLUSION

The number of adult seeking treatment has increased when compared to the earlier days. Nevertheless proper treatment plan has to be decided for better outcome and more awareness about the various treatment options should be highlighted to the patient.

### REFERENCE

1. Reitan, B Kaare: Orthodontic treatment of adult patients, *Norske Tandl. Tid.* 1941;51:41-62.
2. Proffit WR (2000) Treatment for adults: special consideration in comprehensive treatment for adults. In Proffit WR (ed.) *Contemporary Orthodontics*, p. 648. St Louis, MO: Mosby.
3. Van Dyke TE and Sheilesh D (2005) Risk factors for periodontitis. *J Int Acad Periodontol* 7, 3–7.
4. Genco RJ and Loe H (1993) The role of systemic conditions and disorders in periodontal disease. *Periodontol* 2000 2, 98–116.
5. Lalla E, Lamster IB, Drury S, Fu C and Schmidt AM (2000) Hyperglycemia, glycoxidation and receptor for advanced glycation end products: potential mechanisms underlying diabetic complications, including diabetes associated periodontitis. *Periodontol* 2000 23, 50–62.
6. Taylor GW, Burt BA, Becker MP, Genco RJ and Shlossman M (1998a) Glycemic control and alveolar bone loss progression in type 2 diabetes. *Annals Periodontol* 3, 30–39.
7. Taylor GW, Burt BA, Becker MP, Genco RJ, Shlossman M, Knowler WC and Pettitt DJ (1998b) Non-insulin dependent diabetes mellitus and alveolar bone loss progression over 2 years. *J Periodontol* 69, 76–83.
8. Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care* 1997;20:1183-97.
9. Theodosia Bartzela, Jen C et al (2009) Medication effects on the rate of orthodontic tooth movement: a systematic literature review. *Am J Orthod Dentofacial Orthop* vol 141, issue 5, page 563-573.
10. Krishnan V, Davidovitch Z. The effect of drugs on orthodontic tooth movement. *Orthod Craniofac Res* 2006;9:163-71.
11. Yamasaki K, Shibata Y, Fukuhara T. The effect of prostaglandins on experimental tooth movement in monkeys (*Macaca fasciata*). *J Dent Res* 1982;61:1444-6.
12. Sandy JR, Harris M. Prostaglandins and tooth movement. *Eur J Orthod* 1984;6:175-82.
13. Ashcraft MB, Southard KA, Tolley EA. The effect of corticosteroid-induced osteoporosis on orthodontic tooth movement. *Am J Orthod Dentofacial Orthop* 1992;102:310-9.

14. Hellman M (1921) Variations in occlusion. *Dent Cosmos* 63, 608–619.
15. Le Resche L, Burgess J and Dworkin SF (1988) Reliability of visual analog and verbal descriptor scales for ‘objective’ measurement of temporomandibular disorder pain. *J Dent Res* 67, 33–36.
16. Dworkin SF, Sherman J, Mancl L, Ohrbach R, LeResche L and Truelove E (2002) Reliability, validity, and clinical utility of the research diagnostic criteria for temporomandibular disorders axis II scales: depression, non-specific physical symptoms, and graded chronic pain. *J Orofac Pain* 16, 207–220.
17. Tang EL and Wei SH (1993) Recording and measuring malocclusion: a review of the literature. *Am J OrthodDentofacialOrthop* 103, 344–351.
18. Baumrind S and Frantz RC (1971) The reliability of head film measurements. 1.Landmarkidentification. *Am J Orthod* 60, 111–127.
19. Joseph R. Valinoti.(1995)Extraction frequencies AO Vol. 65, No. 2 pp. 86-87.
20. S. F. H. Ismail and A. S. Johal (2002)The role of implants in orthodontics. *BJO*,VOL 29, 239-245
21. Celenza and Hochman(2000).Absolute anchorage in orthodontics:Direct and indirect implant assisted modalities. *JCO VOL 7, 07, 397-402.*