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**MECHANICAL STRATEGIES TO IMPROVE OPEN BITE TREATMENT  
STABILITY**

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## MECHANICAL STRATEGIES TO IMPROVE OPEN BITE TREATMENT STABILITY

To use the mechanical strategies, we have to know the stability of each treatment approach in the different stages of the dentition:

### 1.- OPEN-BITE TREATMENT IN THE DECIDUOUS AND MIXED DENTITIONS

#### 1.1.- Treatment with tongue crib or tongue spurs<sup>(1, 2)</sup>



#### 1.2.- Treatment stability in the deciduous and mixed dentitions

Clinical stability is close to 100%<sup>(3, 4)</sup>. Therefore, no additional special mechanical strategy is necessary.

### 2. OPEN-BITE TREATMENT IN THE PERMANENT DENTITION

#### 2.1- Differential diagnosis

#### 2.2- Open-bite non-extraction treatment

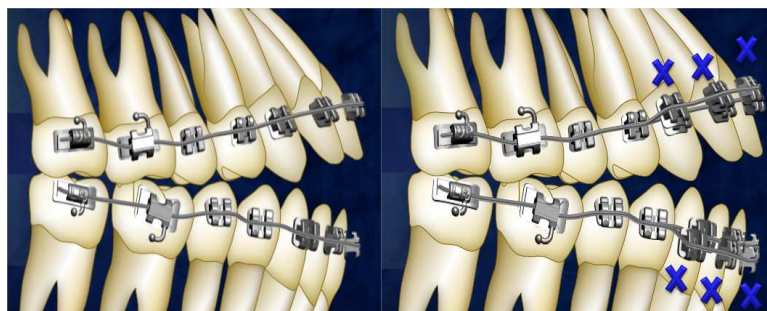


#### 2.2.1- Stability of non-extraction open bite treatment

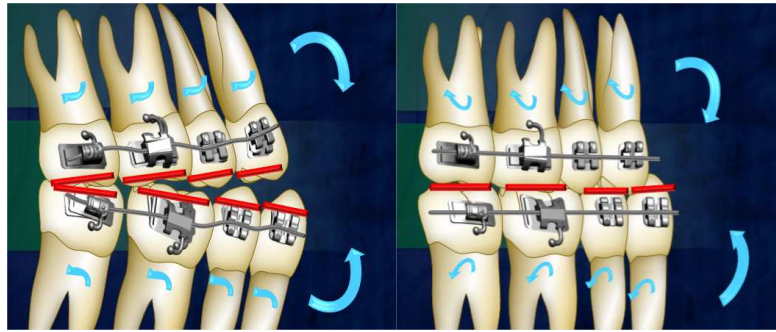
Clinical stability is of 61.9%<sup>(5, 6)</sup>.

Therefore, the following mechanical strategies should be used to increase treatment stability<sup>(7)</sup>:

#### a- Differentiated anterior bracket positioning – to allow overcorrection



**b- Mesially angulated posterior teeth attachments**



**c- Concomitant use of palatal crib or tongue spurs during treatment<sup>(4)</sup>**



**d- Active retention**



**e- Myofunctional therapy<sup>(8)</sup>**

**f- Association of the treatment procedures<sup>(7, 9)</sup>**

**Retreat relapsed cases treated non-extraction, with extraction or surgical-orthodontically with occlusal adjustment**



**Decreases the clinical relapse**

### 2.3- Open bite treatment with extractions



#### 2.3.1- Stability of extraction open bite treatment

Clinical stability is of 74.2.9%<sup>(5, 10)</sup>.

Therefore, the same mechanical strategies mentioned should be used to improve stability.

#### 2.3.2- Stability of Extraction versus non-extraction open-bite treatment

Extraction treatment is more stable than non-extraction treatment<sup>(11)</sup>.

### 2.4.- Open-bite correction with posterior teeth intrusion



#### 2.4.1.- Stability of anterior open-bite treatment by posterior teeth intrusion

Molar intrusion has a relapse rate of 20 to 30%<sup>(12-14)</sup>.

Overcorrection is necessary, besides the other mechanical strategies mentioned.

## **2.5- Treatment of open-bite with occlusal adjustment**



### **2.5.1- Stability of open bite treatment with occlusal adjustment**

**Clinical stability is of 66.7%<sup>(9, 15)</sup>.**

## **3. ORTHODONTIC-SURGICAL TREATMENT OF ANTERIOR OPEN BITE**



### **3.1. Stability of orthodontic-surgical anterior open bite correction**

**Clinical stability is of 82%<sup>(5, 16)</sup>.**

**Use the last three mentioned mechanical strategies and the most stable surgical approach to improve stability.**

## REFERENCES

1. Justus R. Correction of Anterior Open Bite with Spurs: Long-Term Stability. *World J Orthod.* 2001;2:219–31.
2. Proffit WR, Fields HW, Sarver DM. *Contemporary orthodontics.* 4th ed. St. Louis: Mosby Elsevier; 2007.
3. Cozza P, Mucedero M, Baccetti T, Franchi L. Treatment and posttreatment effects of quad-helix/crib therapy of dentoskeletal open bite. *Angle Orthod.* 2007;77(4):640-5. Epub 2007/07/04.
4. Huang GJ, Justus R, Kennedy DB, Kokich VG. Stability of anterior openbite treated with crib therapy. *Angle Orthod.* 1990;60(1):17-26.
5. Greenlee GM, Huang GJ, Chen SS, Chen J, Koepsell T, Hujoel P. Stability of treatment for anterior open-bite malocclusion: a meta-analysis. *Am J Orthod Dentofacial Orthop.* 2011;139(2):154-69. Epub 2011/02/09.
6. Janson G, Valarelli FP, Henriques JF, de Freitas MR, Cancado RH. Stability of anterior open bite nonextraction treatment in the permanent dentition. *Am J Orthod Dentofacial Orthop.* 2003;124(3):265-76.
7. Janson G, Valarelli FP. *Open-Bite malocclusion: Treatment and Stability.* Ames, IA: Wiley-Blackwell; 2014. 476 p.
8. Smithpeter J, Covell D, Jr. Relapse of anterior open bites treated with orthodontic appliances with and without orofacial myofunctional therapy. *Am J Orthod Dentofacial Orthop.* 2010;137(5):605-14. Epub 2010/05/11.
9. Janson G, Crepaldi MV, Freitas KM, de Freitas MR, Janson W. Stability of anterior open-bite treatment with occlusal adjustment. *Am J Orthod Dentofacial Orthop.* 2010;138(1):14 e1-7; discussion -5. Epub 2010/07/14.
10. de Freitas MR, Beltrao RT, Janson G, Henriques JF, Cancado RH. Long-term stability of anterior open bite extraction treatment in the permanent dentition. *Am J Orthod Dentofacial Orthop.* 2004;125(1):78-87.
11. Janson G, Valarelli FP, Beltrao RT, de Freitas MR, Henriques JF. Stability of anterior open-bite extraction and nonextraction treatment in the permanent dentition. *Am J Orthod Dentofacial Orthop.* 2006;129(6):768-74. Epub 2006/06/14.
12. Baek MS, Choi YJ, Yu HS, Lee KJ, Kwak J, Park YC. Long-term stability of anterior open-bite treatment by intrusion of maxillary posterior teeth. *Am J Orthod Dentofacial Orthop.* 2010;138(4):396 e1-9; discussion -8. Epub 2010/10/05.
13. Deguchi T, Kurosaka H, Oikawa H, Kuroda S, Takahashi I, Yamashiro T, et al. Comparison of orthodontic treatment outcomes in adults with skeletal open bite between conventional edgewise treatment and implant-anchored orthodontics. *Am J Orthod Dentofacial Orthop.* 2011;139(4 Suppl):S60-8. Epub 2011/04/01.
14. Sugawara J, Baik UB, Umemori M, Takahashi I, Nagasaka H, Kawamura H, et al. Treatment and posttreatment dentoalveolar changes following intrusion of mandibular molars with application of a skeletal anchorage system (SAS) for open bite correction. *Int J Adult Orthodon Orthognath Surg.* 2002;17(4):243-53. Epub 2003/02/21.
15. Janson G, Crepaldi MV, de Freitas KM, de Freitas MR, Janson W. Evaluation of anterior open-bite treatment with occlusal adjustment. *Am J Orthod Dentofacial Orthop.* 2008;134(1):10-1. Epub 2008/07/12.
16. Maia FA, Janson G, Barros SE, Maia NG, Chiqueto K, Nakamura AY. Long-term stability of surgical-orthodontic open-bite correction. *Am J Orthod Dentofacial Orthop.* 2010;138(3):254 e1- e10; discussion -6. Epub 2010/09/08.