

Stability in Orthodontics and their Relation with Myofunctional Orthodontics and Vitamin C

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Abstract:

Stability is the ability to remain unchanged over time, the occlusion of the teeth being the most important factor in determining said stability. Most importantly after a treatment of Orthodontics is the occlusal stability that has been achieved with treatment, but this stability may become unbalanced by changes due to growth of the patient, or by maturation and aging of the dentition. To achieve and maintain this over time, the third phase of Orthodontics or completion is key. Since without it there is a natural tendency for the teeth to return to their initial position. To avoid this recurrence after achieving the objectives of aesthetic and occlusal stability achieved with the treatment, it is advisable to place retentions, fixed or removable depending on the type of malocclusion, to keep the teeth in their new position until after the reorganization that occurs in the periodontal structures. The same time, there are other factors to consider to minimize the risks of recurrence that can be introduced after an Orthodontic Treatment to avoid the patient having to undergo a new treatment.

Keywords: Stability- Stability after Orthodontics Treatment- Retention- Vitamin C- Myofunctional Orthodontics

Introduction

Stability after treatment is a fundamental part of it, as it is key to achieving excellence in the final result that lasts over time. During orthodontic treatment we modify the position of the teeth, however, there is an elastic memory of the fibers that surround the tooth and hold it. These fibers make the teeth tend to return to their initial position. Therefore, after treatment, we must "retain" the teeth in the position obtained while the tissues adapt to the new position.

Stability begins with a correct diagnosis and treatment plan, hence the importance of taking enough time to carry them out correctly. It is important to determine the cause of the malocclusion in order to treat it and thus avoid recurrences. [12]

Refers to maintaining orthodontic results after tooth removal devices in time, ending the case with closed spaces, correction of rotations, root parallelism among others, which It will allow good occlusion and dental stability, but also must consider occlusal stability from a dynamic point, i.e. an occlusion that does not alter mandibular stability. (11) Muscle factors can affect stability, such as tongue position, mouth breathing, lip muscles, and habits like thumb sucking. [12, 13] Authors like Mc. Neil, Mc. Horris, Echeverri Guzmán, Okesson, Manns, They name two types of stability: Dental Stability and Mandibular Orthopedic Stability. (17)

Retention after Treatment

The objective of Retention or containment in orthodontics is to achieve occlusal stability. (14)

This is achieved with a set of devices whose function is to maintain and stabilize the teeth in an aesthetic and functional position optimal, after removing the appliance. (15)

Among the types of appliances there are fixed and removable, their indications vary according to each patient and the type of malocclusion they had before the orthodontic treatment.

As for the duration of it, there is no specific time, it depends on the case

Due to the many phenomena that occur naturally in man and are uncontrollable by the orthodontist, the only way to ensure a satisfactory post-retention alignment is the use of fixed or removable retention throughout life. (18)

Fixed Retention:

Fixed orthodontic retention is used in cases where the instability between the teeth of the arch is anticipated, being then necessary the use of a prolonged containment. The main cause of crowding of the lower incisors is the late growth of the jaw in late adolescence.

When the closure of diastemas between the central incisors occurs upper teeth, it is important that the teeth remain glued between yes to continue closing spaces between them. Containment more indicated for this purpose is the use of a glued flexible thread and contour the cingulate to keep it out of occlusal contact. The most commonly used fixed retention is the 3x3 or canine lingual bar to canine. Can Be Made with Thread braided specifically manufactured for this purpose or with steel wire compact 0.6mm diameter (Fig. 1)



Fig. 1 Fixe retention 3x3 upper



Fig. 2 Fixe retention 3x3 lower.

Removable Retention:

They are retainers that the patient can place and remove when required, exerting intermittent action.

In multiple references it is reported as part of these retainers to the functional appliances, extraoral appliances (chin rest, anchorage extraoral) in patients still in remnant growth post-treatment or between phases of orthodontic treatments, that is, when the second phase will take place. (16)

The two devices in common use are Hawley (Fig. 3) and thermoplastics plaques. The removable retainers allow for greater hygiene both with the brush and floss with the downside that they depend on collaboration of the patient.



Fig 3. Removable retention. Hawley

Relation Stability whit Myofunctional Orthodontics:

Myofunctional Orthodontics is the discipline whose main objective is to improve muscle function and reduce soft tissue dysfunction (tongue, lips, cheeks and respiratory patterns), which allows a good skull-facial development, at the bone level and at the bone level muscle, accompanied by dental alignment, all through Myofunctional reeducation. (3,4,5,6).

Myofunctional Orthodontics suggests that the cause of malocclusion is muscle dysfunction. The results of Myofunctional Orthodontics do not come from excessive forces on the teeth, but rather focus on correcting the function, adjusting the forces of the tongue and lips to develop the arch and jaws, thus improving dental alignment. (3)

The forces of the tongue, lips, and surrounding facial muscles are sufficient to move the teeth into any position. Once the previously diagnosed and treated soft tissue dysfunction is corrected, there is: stable arch development, increased space for teeth in the jaws, anterior crowding is resolved with little mechanical effort and alignment is improved dental, obtaining much better results especially in terms of stability. (3, 13).

The objectives of the desired Myofunctional treatment for patients are: the patient must breathe through the nose, the lips must be in contact at rest and the tongue must be in its correct position, no lip activity should be seen when the patient swallows, occlusion class I with neutral-occlusion, well-aligned teeth, and finally improve facial development allowing the patient to reach their highest genetic potential. (4)

In my experience I use it successfully as a containment after orthodontic treatment, as it provides great stability in patients with mouth breathing or open bite previously treated with braces. Helps to produce correct tongue position, restores nasal breathing and lip competence. To achieve the objectives and results of Myofunctional treatment it is necessary for the patient to wear the device 1-2 hours during the day and overnight while sleeping, regularly and daily. (4,6)

Relation Stability whit Vitamin C:

Vitamin C is Water soluble vitamin synthesized from glucose. As it cannot be synthesized by the body, it must be consumed in fruits, vegetables and supplements. It is recommended to take 75 mg / day (women) and 90 mg / day (men) (7).

Its effects on the body are: antioxidant as it protects cells against damage caused by free radicals present in the cigarette smoke, environmental pollution and ultraviolet rays; production of collagen necessary for wound healing; improves absorption of the iron present in foods of vegetal origin; contributes to the system immune to protect the body against diseases; can delay the macular disease progression and age-related cataracts. (7)

Why is vitamin c important in Orthodontics?

Vitamin C is considered important in the synthesis of collagen, necessary for alveolar bone repair. Its deficiency alters osteogenesis, alteration of the bone and periodontal ligament and increased resorption of bones.

What is the relationship with Post Treatment stability?

Tooth movement requires simultaneous synchronous functioning of collagen metabolism. Collagen metabolism depends on adequate supply of Vitamin C for production of mature collagen. The lack of Vitamin C affects periodontal ligament and creates enlarged endosteal and periosteal spaces with osteoclastic activity thus affecting tooth movement and retention following orthodontic treatment [8]. It has also been observed in vitamin C deficient individuals that orthodontically corrected teeth were unstable and relapse is faster as compared to individuals with no vitamin C deficiency [9,10].

Requirements during treatment

The absence of vitamin C is counterproductive for the maintenance of the tissues and, much more, if they are going to undergo a restructuring, as occurs with periodontal tissues subjected to orthodontic treatment.

In this sense, if the process of bone and periodontal remodeling, as well as the health of the dental organ itself, during treatment represents a new and temporary situation where the constant formation of collagen will be required for a period of approximately 1 or 2 years, It is to expect an increase in the patient's vitamin C needs.

However, although it is important to take into account that, in general, the recommended doses of vitamin C are consumed daily when maintaining a balanced diet, in healing processes, smoking patients, the elderly, stress situations, infections, pregnancy, alcoholism, etc. a higher synthesis of collagen will be required.

To accurately determine the real and prevailing need to consume vitamin C, in addition to what the patient ingests in his diet, previous studies can be carried out on his diet and habits, as well as on the pathological and / or environmental conditions that increase his excretion or decrease its absorption.

Conclusion

One of the most valuable things that a person can have is time, so it is necessary to assess the time that a patient has invested in a treatment giving excellence as Professionals so that they do not have to undergo another treatment later to present recurrences. This is achieved by making a rigorous diagnosis to determine the cause that has produced the malocclusion, can choose an appropriate treatment and later the adequate retention.

Remembering the importance of proposing comprehensive treatments that look beyond the position of the teeth individually, that is, also looking for stability at the muscular and functional level, and making sure that in older patients or those who may have a vitamin C deficiency for presenting situations in which there is a tendency to excrete more of it, such as infections or pregnancy or stress, there is a good supply of vitamin C that will ensure proper collagen formation. To further reduce the chance of recurrence.

Conflict of Interest

The author declare no conflict of interest

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