Chapter 5

Orthodontic-Pedodontic Multidisciplinary Treatments and Current Approaches

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Abstract

Primary teeth play a crucial role in preserving space for the proper eruption of permanent teeth. Premature loss of primary teeth can lead to the migration of adjacent teeth, resulting in crowding, occlusal malocclusion, and impaction of permanent teeth. Space maintainers are utilized to prevent these complications, In recent years, advancements in digital technologies, including CAD/CAM systems and 3D printing, have enabled the development of customized space maintainers with precision and faster production. Bad oral habits typically emerge during infancy and often resolve spontaneously over time. However, the prolonged persistence of certain habits can lead to structural alterations in the teeth and jaw. Early identification and intervention of these habits play a crucial role in preventing future orthodontic problems and promoting the maintenance of a healthy oral structure. Anterior crossbite is a type of malocclusion characterized by the positioning of the upper anterior teeth more lingually to the lower anterior teeth. This condition can lead to aesthetic concerns and negatively impact the psychosocial development of children. Early interventions help prevent the occurrence of more complex orthodontic issues in later years. This review discusses current treatment methods for a multidisciplinary approach, addressing both pedodontics and orthodontics.

1. Current Perspective on Space Maintainers in Pediatric Dentistry

Primary teeth play a crucial role in maintaining space until permanent teeth erupt into the oral cavity. This ensures that permanent teeth emerge in the correct position when primary teeth naturally exfoliate. If primary

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teeth are lost prematurely, adjacent teeth may drift into the resulting space, potentially leading to occlusal disturbances, crowding, or impaction of permanent teeth.[1,2] In such cases, it is necessary to maintain the space with a space maintainer.

Space maintainers are of critical importance in preserving the space created by prematurely lost primary teeth, ensuring the proper alignment and eruption of permanent teeth.[3] Additionally, they contribute to the proper development of the dental arch by preserving arch length. The factors influencing the selection of an appropriate space maintainer include the child's dental age, the location of the lost tooth, the eruption timing of the permanent tooth, the presence of opposing teeth, the child's oral hygiene habits and cooperation, congenital absence of the permanent tooth, the amount of bone covering the permanent tooth, the time elapsed since the extraction, and parental consent. If these factors are not considered, the existing problem may worsen, making proper planning essential for selecting an appropriate space maintainer.[4]

Space maintainers are classified under three main categories (Table 1).[5]

Table 1. Space maintainer types

Space Maintainer Types					
Based on Usage Conditions		Based on Functions		Based on the Forces Applied to the Teeth	
Fixed Space Maintainers	Removable Space Maintainers	Functional	Non-Functional	Active	Passive
Band and Loop					
Crown and Loop					
Distal Shoe					

Different materials can be used in the production of space maintainer appliances. Recently, with the integration of 3D printers and CAD/CAM technology into dentistry, significant advancements have been made in the fields of pediatric dentistry and orthodontics. Digitally fabricated space maintainers allow for more precise and highly customized designs to be created quickly.[6] Additionally, digital impressions help prevent the gag reflex.[7] The clinical applicability of digital space maintainers is quite good. In this regard, there are studies indicating that they demonstrate excellent stability.[6,7] Since the digital workflow reduces the time spent at

the patient's chair and the number of appointments, it can be inferred that the fear in pediatric patients may be alleviated, and communication with patients may become easier.[8,9] Although studies have shown that traditional space maintainers have a higher survival rate compared to digital space maintainers, and that metal-based space maintainers produced with 3D printers have higher clinical success than resin-based space maintainers, it has been reported that patients prefer the digital workflow more than traditional space maintainers.[8,10] Polyetheretherketone (PEEK) polymer is preferred in the production of digital space maintainers due to its superior fit and stability compared to traditional materials.[11] Furthermore, it can be considered an important alternative for pediatric patients with metal allergies or those who are sensitive to metallic tastes.[8]

In conclusion, digital space maintainers in pediatric dentistry offer many advantages, such as precision, personalized design, time efficiency and enhanced patient experience. Clinical studies have demonstrated the applicability and stability of these methods; however, there is still a lack of sufficient research regarding long-term retention compared to traditional methods. Materials like PEEK polymer and advanced digital workflows can provide more effective and patient-friendly solutions in pediatric dentistry.

2. Approach to Bad Oral Habits in Pediatric Patients

An action that is performed automatically and repeatedly is referred to as a habit.[12] Many oral habits begin spontaneously in infancy and cease on their own. The mouth is the primary and permanent area where emotions are expressed in both children and adults. Additionally, the mouth, which has been reported as a source of relaxation for anxiety, can become a comforting action when stimulated by the tongue, finger, nail, or cigarette.[13] Oral habits are examined under two main categories.[12]

2.1. Acquired oral habits: These are learned behaviors that can be easily stopped and the child can replace them with other behaviors as they grow.

2.2. Compulsive oral habits: These are behaviors that are ingrained in the child and when emotional pressures become unbearable, the child may find a sense of security in these habits. Preventing the child from engaging in these habits may cause them to feel anxious and worried.

Bad oral habits can lead to malocclusions. As a result of bad oral habits performed for 4 to 6 hours, posterior crossbite, open bite, and an increase in facial height and overjet may occur.[14,15] The duration of the bad oral habit is more important than the force applied; the pressure from the lips, cheeks, and tongue are the most effective factors on tooth position.[14] If bad habits are

discontinued by the age of 4, even if an anomaly occurs, it can spontaneously correct itself with the continued developmental process.[5] It is important to identify bad oral habits and determine the type of malocclusion they cause in clinical evaluations. Additionally, a comprehensive understanding of this issue is necessary to determine the appropriate treatment method.[5] Bad oral habits are repetitive behaviors that lead to the disruption of tooth structure in the oral cavity. The effects of the habit vary depending on the type of behavior, the age at which it begins, and its duration.[16] These habits include thumb sucking, pacifier use, lip sucking, teeth grinding, nail biting, bruxism, mouth breathing, and tongue thrusting.[17]

2.3. Thumb sucking: It is the most common oral habit, and it has been reported that its prevalence varies between 13% and 100% in some societies.[12] If a child develops this habit during the first year of life, parents should gently remove the finger and redirect the child's attention to other objects, such as toys. Some children who do not give up this habit may stop the behavior when their permanent teeth come in; however, there is also a tendency for the sucking habit to continue into adulthood. The bottle is often used by parents not only for feeding purposes but also to help the child fall asleep, calm down, and reduce crying. A child accustomed to this situation may develop the habit of thumb sucking in the absence of access to a bottle, in an attempt to fill the emptiness. Additionally, babies may develop the habit of thumb sucking for reasons such as gaining attention, expressing discomfort, relieving pain during the teething process, reducing the itching sensation, and satisfying their sucking reflex.[5] There are two types of thumb sucking: active and passive.[12] In the active type, a strong force is applied by the muscles during sucking, and if the habit continues for a long time, it can negatively affect the position of the permanent teeth and the shape of the mandible. In the passive type, the child places their finger in the mouth, but since no force is applied on the teeth and mandible, this habit is not associated with skeletal changes.[18,19] As a result of thumb sucking, anterior open bite, increased overjet, lingual inclination of lower incisors and labial inclination of upper incisors, posterior crossbite, abnormal swallowing and tongue thrusting, deep palate, speech disorders, and eczema or abnormal widening on the fingers may be observed. The severity of these outcomes can vary depending on the timing of thumb sucking in relation to the dentition stage and the angle at which the finger is held.[20] It has been reported that in children who have a sucking habit for 6 hours or more per day, especially during the night or sleep, serious anomalies in the dentoalveolar system and minor skeletal defects may develop.[18,21] Additionally, studies have reported a strong correlation between thumb sucking and temporomandibular joint

(TMJ) dysfunction during both the primary and permanent dentition periods.[22,23] For these reasons, it is important to discontinue the thumb sucking habit. In order to prevent the issues caused by such habits, they should be detected and eliminated at an early stage. Before resorting to appliance use, if the child is sufficiently mature, the negative effects of thumb sucking should be explained, the importance of breaking the habit should be emphasized, and the child should be supported in adapting to this process with a convincing approach.[24] Moreover, encouraging the child by instilling self-confidence and pride in this matter can also be an effective method for quitting thumb sucking.[24] If a child wants to quit the habit but is unable to do so, reminder strategies such as wrapping the finger with water-resistant adhesive tape, using a single-fingered glove or sock, and coating the finger with a bitter-tasting substance, especially during sleep times, can help in breaking the habit. Sometimes, this may be perceived by the child as a punishment; however, the child should be informed that these methods are not actually a form of punishment, but rather are intended to assist the child in overcoming the habit.[16] The treatment of thumb sucking can also be achieved through a reward system. A motivating reward can encourage the child to abandon the habit. If the child successfully gives up the habit within the designated time, their effort should be praised, and the habit can be permanently broken with the reward, thus increasing the child's trust in the process.[16] Despite these treatment methods, if the habit persists, an appliance therapy should be initiated. Extra-oral appliances are more effective than intra-oral appliances because they do not interfere with speech, are easier to prepare, and do not disrupt oral hygiene. The most commonly used appliance is the thumb appliance. The acrylic barrier in the thumb appliance prevents thumb sucking; however, it is important for the family to monitor the child to ensure they do not suck other fingers. To minimize the potential disadvantages of intraoral appliances, a new electronic reminder appliance has been developed for children with habits, designed with a modified thumb appliance. This innovative appliance functions as an effective reminder by triggering an alarm when the child brings their finger to their mouth, helping to break the habit. This system provides a more practical and successful solution for both the child and the parents during the treatment process.[16] It has been reported that *Thumbsie*, which is manufactured in the United Kingdom and made from fabric, features patterns that attract children's attention and is highly effective in breaking the habit.[25] In addition, elbow protection appliances can prevent thumb sucking. With the modified form of this appliance, *the Three-Alarm System*, not only is the thumb sucking physically blocked, but when the child attempts to engage in the habit, a

chip system integrated into the appliance plays the child's favorite music. This serves as a behavioral reminder. Thus, the process of breaking the habit is supported in a fun way, while also increasing the child's psychological motivation to change their habits.[26] Both fixed and removable intraoral appliances can be used in the treatment of thumb sucking.[27] In the case of using fixed or removable appliances, parents should be informed about potential issues that may arise during speech or eating within the first 24-48 hours; these issues are usually normal and resolve on their own. After the active phase of treatment, the appliance should remain in the mouth for an additional 3 to 6 months to minimize the potential for relapse.[24] *Coffin spring, quad helix, palatal crib, expansion appliances,* and *the W ark appliance* also provide an effective treatment approach in preventing harmful oral habits. These appliances can be used to regulate dentoalveolar alignment and eliminate functional disorders, thereby offering a more comprehensive solution during the treatment process [28]. It has also been reported that *the modified Haas appliance* has yielded successful results in cases of crossbite and open bite resulting from thumb sucking.[29] *The quad helix appliance*, a fixed appliance with the ability to expand the maxillary arch, must be used for at least 6 months in total—3 months to correct the posterior crossbite caused by thumb sucking and an additional 3 months for stabilizing the movement.[16] In cases of open bite resulting from thumb sucking, *the palatal crib appliance* is another option.[30] The appliance, which is recommended for 12 months of use, can also be used for retention purposes after the treatment with *the quad helix appliance*.[16] In recent years, *position-trainer appliances* are increasingly used in the treatment of harmful habits. This appliance is especially preferred in cases of anterior open bite which is suitable for children in the mixed dentition stage, aged 6-10 years, It is advantageous when the patient is willing to undergo treatment but does not want to use a fixed appliance. Available in various sizes, *the position-trainer* eliminates the need for impressions and the custom fabrication process, making the treatment process faster and more practical. The appliance, which is recommended for use between 6-12 months, should be worn for at least one hour during the day and throughout the night.[31] *The Bluegrass appliance*, known as the habit correction cylinder, is another appliance used in the treatment of thumb sucking. An important advantage of this appliance is the use of a cylinder instead of the traditional crib. Its more compact design prevents it from being noticed from outside the mouth. Additionally, the cylinder functions as a neuromuscular stimulator on the tongue, offering a significant feature that can assist patients, particularly during speech therapy. Thus, the appliance is used not only as a habit-correcting tool but also as a treatment

device that provides functional improvement.[32] The modified form of the appliance is tailored to individual needs and functions not only as a correction tool for thumb sucking and tongue thrusting habits but also as an aesthetic space maintainer.[33]

2.4. Pacifier use: Pacifier use is common in most countries and does not cause permanent changes in the dentition if discontinued by the age of 2-3 years. However, prolonged use beyond the age of 3 has detrimental effects on dental development, and continued use after the age of 5 further exacerbates these effects.[34] Prolonged pacifier use can lead to an overjet greater than 4 mm, Class II canine relationship, distal step occlusion in primary molars, anterior open bite, and crossbite in later stages.[35] Pediatric dentists frequently emphasize that pacifier use may be less harmful compared to thumb sucking habits, as it generally decreases between the ages of 2 and 4. Therefore, pacifier use may be recommended for infants exhibiting non-nutritive sucking behavior.[36] Studies have shown that even when used for more than two years, orthodontic pacifiers do not significantly contribute to the development of harmful oral habits or malocclusions. Additionally, it has been reported that children who begin using orthodontic pacifiers early, within the first three months, have a lower likelihood of developing a thumb-sucking habit.[37]

2.5. Lip sucking and biting: This issue is observed predominantly in the lower lip in nearly all cases and can lead to the labial inclination of the upper incisors and the lingual inclination of the lower incisors.[38] Furthermore, the lower lip may become trapped between the upper and lower anterior teeth, resulting in dental misalignment. This habit is associated with lip dryness and inflammation and has been reported to cause vermilion hypertrophy in severe cases.[39] Moreover, in some individuals, it may lead to chronic herpes formation or lip fissures.[12] In severe cases of lip sucking, periodontal health may be adversely affected, leading to gingival recession and increased tooth mobility.[40] It has been reported that the use of a *lip bumper appliance* in treatment can help reduce mentalis muscle hyperactivity and labiomental tension, facilitate an increase in arch length, improve incisor inclination, and decrease excessive overjet.[41]

2.6. Nail biting (onychophagy): Typically emerging after the ages of 3–4 and peaking around the age of 10, nail-biting behavior is frequently observed during adolescence but tends to decline in later years.[12] The prevalence of nail biting in adolescence is higher among males compared to females, while no significant gender differences are observed in children under the age of 10.[42] In individuals with chronic nail-biting habits, particularly during orthodontic

treatment, an increased incidence of *Enterobacteriaceae* in the oral cavity has been identified.[43] Nail biting is associated with various psychosocial issues, which can indirectly affect orthodontic outcomes. Children who engage in this habit may experience anxiety or stress, potentially compromising their cooperation during orthodontic treatment.[44] Additionally, localized oral health problems, such as gingivitis, have been reported in children with nail-biting habits.[45] If the habit persists, it may lead to dental issues such as rotation, labial or lingual inclination, crowding, and diastema, all of which contribute to malocclusion.[46] Treatment approaches include psychological counseling and communication-based interventions, as well as the use of electronic reminder devices to gradually eliminate the habit.[47] The application of bitter-tasting nail polish has also been shown to assist in deterring children from the habit.[48] Furthermore, cognitive-behavioral therapy (CBT) can be employed to provide psychological support for affected individuals [48]. In severe cases, particularly in patients with obsessive-compulsive disorder (OCD), treatment may involve the administration of selective serotonin reuptake inhibitors (SSRIs) to alleviate anxiety.[49] Furthermore, customized fixed appliances designed to be placed in the mandibular arch, specifically in the canine-to-canine region, have been successfully utilized in young adult patients for the management of nail-biting habits.[50]

2.7. Mouth breathing: Mouth breathing can result from various causes, including allergic rhinitis, hypertrophic adenoids and tonsils, nasal septal deviation and obstructive sleep apnea.[51] Children who exibit mouth breathing are more prone to Class II malocclusion, anterior open bite, and crossbite. These conditions stem from abnormal growth patterns influenced by mouth breathing.[52] Mouth breathing disrupts facial development, leading to long, narrow faces, high palatal vaults, and a constricted oral cavity, ultimately resulting in aesthetically undesirable facial features.[53] In addition, mouth breathing has been associated with an increased risk of periodontal problems, such as chronic gingivitis, periodontitis, halitosis and has also been reported to contribute to a higher incidence of dental caries.[54] The airway obstruction caused by mouth breathing can interfere with sleep patterns, leading to fatigue and potential academic difficulties, which are often misdiagnosed as attention deficit disorder.[53] Beyond its dental and academic effects, mouth breathing is linked to lower oxygen saturation levels and a higher prevalence of allergic diseases, posing negative impacts on a child's overall health and development.[52] Treatment typically requires a multidisciplinary approach addressing the underlying causes of mouth breathing. For instance, collaboration between orthodontists and otolaryngologists may be necessary to manage conditions such as obstructive

sleep apnea and malocclusion.[55] In cases where mouth breathing is associated with ankyloglossia, timely frenectomy combined with myofunctional therapy can be an effective intervention.[56] Treatment options for children experiencing halitosis include antimicrobial photodynamic therapy, and the potential efficacy of probiotics is currently being investigated.[57] If mouth breathing impairs sagittal maxillary development, rapid maxillary expansion (RME) appliances can be used to widen the maxilla, thereby improving nasal ventilation and reducing mouth breathing. RME has been reported to enhance nasal dimensions and improve nasal respiratory function in the short term.[58] In cases of unilateral crossbite associated with mouth breathing, *the quad-helix appliance* may serve as an effective orthodontic intervention.[5] Moreover, targeted exercises can promote nasal breathing and improve overall respiratory function.[59]

2.8. Tongue thrust: Tongue thrust is an orofacial myofunctional disorder characterized by an abnormal resting tongue posture and an altered tongue position during swallowing. It is commonly referred to as "atypical swallowing" and is also associated with terms such as "deviant swallowing" or "infantile swallowing".[60] Tongue thrust can contribute to malocclusions, while preexisting malocclusions may also exacerbate it.[61] This habit, particularly when the infantile swallowing pattern persists into later childhood, significantly contributes to anterior open bite and maxillary incisor protrusion.[62] Chronic tongue thrust may lead to dentoalveolar complications, such as atypical root resorption in primary anterior teeth, which can result in their premature loss.[33] A combined approach of orthodontic treatment and myofunctional therapy is emphasized in the management of tongue thrust. Appliances such as the *Hybrid Habit Correction Appliance* can be utilized to address tongue thrusting and other oral habits, particularly in patients who do not comply with traditional treatment methods.[63] Since this appliance is fixed, it helps improve patient cooperation and can be integrated with fixed orthodontic appliances, providing a comprehensive treatment approach. Another appliance, *the Tongue Right Positioner (TRP)*, is employed in orthodontic treatment to correct atypical swallowing and improve oral functions. TRP is designed to promote proper tongue positioning and function, thereby stabilizing the treatment of dental malocclusions and addressing respiratory disorders such as sleep apnea.[64] This appliance facilitates a faster establishment of a correct swallowing pattern compared to exercises, Unlike conventional methods, TRP provides a passive approach to habit correction, as opposed to active participation required in exercises.[65] Additionally, it contributes to upper airway anatomy by reducing the height of the oral floor and expanding the pharyngeal area.[64]

2.9. Bruxizm: Bruxism is characterized by the involuntary grinding or clenching of teeth, which can occur either during sleep (sleep bruxism) or while awake (awake bruxism).[66] Bruxism is a multifactorial condition influenced by genetic, psychological, physiological, and lifestyle factors, with significant contributors including stress, anxiety, sleep disorders, and behavioral abnormalities.[67] Unless it is treated, it can lead to pathological tooth wear, hypersensitivity, and even tooth loss. Additionally, bruxism has been associated with headaches, myalgia, and temporomandibular joint disorders.[67] Bruxism can disrupt sleep patterns and negatively impact overall health and well-being, making daily activities and social relationships more challenging. It is increasingly recognized as a significant issue among children and adolescents, with an observed rise in cases linked to modern stressors and lifestyle changes.[67] The diagnosis of bruxism can be made using both instrumental and non-instrumental methods. Non-instrumental methods include self-reports, questionnaires, and medical history, while instrumental methods involve polysomnography and electromyography to measure muscle activity.[68,69] Unlike children, adult patients with long-term bruxism often exhibit mandibular angle changes and bone apposition, which can be identified through orthopantomographic radiographs.[70] In terms of treatment, the first-line approach typically involves encouraging patients to maintain good sleep hygiene and perform muscle relaxation exercises. As they help prevent dental attrition and reduce teeth grinding, occlusal splints are the most commonly used among intraoral appliances.[71] Certain medications, such as clonazepam, may improve sleep bruxism in patients with psychiatric comorbidities; however, due to insufficient research, their widespread use is not recommended.[71] Other drugs, including hydroxyzine, trazodone, and flurazepam, have been reported to reduce bruxism based on self-reported data and may alleviate associated headaches.[72] While psychotherapy, conventional medical treatments, and surgical interventions are also potential treatment options, no single gold-standard therapy has been specifically recommended for bruxism.

In conclusion, regarding the impact of stress on the development of oral habits, the increasing stress levels in modern society have led to these habits becoming more common compared to previous decades. Since oral habits negatively affect the dentoalveolar system, more attention should be given to controlling and preventing them.[12]

2.10. Dental Anterior Crossbite in Children

Anterior crossbite is a type of malocclusion where the upper front teeth are positioned more lingually than the lower front teeth due to various dental or skeletal incompatibilities. It is seen in approximately

4-5% of children in the primary dentition phase. This malocclusion can lead to significant aesthetic concerns, as well as negatively affecting the quality of life related to oral health in children, causing dissatisfaction with appearance and potential psychosocial issues. Early diagnosis and treatment are crucial to prevent complications that may arise during the mixed and permanent dentition phases. Otherwise, periodontal damage, enamel wear, tooth mobility, temporomandibular joint disorders, and developmental abnormalities affecting skeletal structures may occur. Pediatric dentists routinely manage the treatment of dental anterior crossbite in clinical practice. Interventions may include appliances or restorative treatments, with these methods showing successful results in correcting the anterior crossbite within weeks.[73,74] Moreover, in Class III malocclusion cases with anterior crossbite, early intervention significantly improves facial profile and dental relationships, supporting healthier growth patterns.[75]

3.1. Treatment with removable appliances: Removable appliances are an effective method for correcting anterior crossbite, especially in children during the mixed dentition phase. These appliances typically include labiolingual springs, anterior inclined planes, or screws. The advantage of removable appliances is that they allow the patient to easily maintain oral hygiene and provide comfort during the treatment process. However, as the appliance can be taken in and out, the success of the treatment largely depends on the patient's regular and proper use of the appliance. In cases where there is insufficient space for the tooth to move from the back to the front, space must be created before the teeth in the crossbite can be proclinized. For this purpose, expansion in the midline can be achieved using a screw, or neighboring teeth that alter the position of the affected tooth can be directed to their proper positions using mesiodistal or labiolingual springs to create space.[5] *The finger-spring appliance* is another alternative for treatment. Due to its short treatment time and less invasive nature compared to fixed appliances, patient compliance and comfort are generally sufficient.[76] Labiolingual springs included in removable appliances should be activated by 1-2 mm each month. If the movement of multiple teeth in the anterior direction is desired, an anterior screw appliance or a three-way screw appliance (Y-type appliance) can be preferred. In these appliances, activations are performed in 2 turns per week (1 turn = 0.25 mm). One of the most important factors to consider in all removable appliances is ensuring sufficient space in the front with posterior bite planes. This aims to prevent trauma to the teeth in the crossbite and improve the effectiveness of the treatment process.[5]

3.2. Treatment with fixed appliances: *The Catlan appliance*, also known as the lower inclined bite plane, is a fixed orthodontic appliance used to correct

anterior crossbite, where the upper anterior teeth are positioned behind the lower anterior teeth. The appliance creates a slight lingual movement in the lower teeth while generating labial movement in the upper teeth.[77] The appropriate age range for use is between 8 and 11 years old. One study showed that the appliance was effective in correcting anterior crossbite in a short period, approximately three weeks, without causing damage to the teeth or surrounding periodontal tissues.[77] Another case series compared *the Catlan appliance* with other orthodontic appliances and found that it provided the shortest treatment duration but was less comfortable than alternatives.[76] *The 2x4 appliance* is effective not only in the treatment of crossbites but also in early-stage anterior malocclusions such as anterior crowding and midline diastemas, particularly for malpositioned permanent upper incisors.[78] This appliance is successfully used to correct single-tooth anterior crossbites, provides extensive control over the anterior teeth and allows for precise movements. The appliance is part of a preventive and interceptive orthodontic treatment approach that aims to simplify or eliminate the need for more complex treatments in the future. Early intervention can prevent more complications associated with untreated malocclusions. The appliance is well-accepted by patients, requires fewer adjustments, and contributes to faster treatment outcomes, making it a preferred choice among orthodontists.[79]

3.3. Treatment with restorative techniques: It is a treatment type applied with aesthetic pediatric zircon or strip crowns. Crossbite can be successfully treated within 1 to 2 weeks using the recommended technique. A 6-month follow-up showed that the occlusion stabilized into a normal sagittal relationship, allowing normal dentofacial growth and development to continue.[74] The technique presented here is a method that pediatric dentists can add to their treatment options for correcting anterior crossbite diagnosed during the primary dentition stage.

Conclusion

The collaboration between orthodontics and pediatric dentistry plays a crucial role in maintaining children's oral health and monitoring dental development. Accurate diagnosis, appropriate treatment methods, and regular monitoring processes carried out in the early stages are fundamental factors in ensuring long-term healthy oral structure and proper alignment of teeth. The integration of these two disciplines not only enhances the effectiveness of treatment processes but also contributes to fostering an informed attitude toward children's dental health. Strong cooperation between orthodontics and pediatric dentistry is a critical step in ensuring that children have a healthy and aesthetically pleasing smile for a lifetime.

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