



Review Article

Prosthesis in pediatric dentistry

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ABSTRACT

The untimely loss of teeth in kids can cause both practical and tasteful issue. Missing teeth on both front and back districts can make harm the rumination and appropriate articulation. On the off chance that missing tooth isn't supplanted, further difficulties can happen, including restoration of carious teeth, alveolar bone misfortune, and sporadic impediment. Given the touchy idea of youngsters, can prompt tooth misfortune improvement of uncertainty and low confidence issues. Because of the dynamic the idea of development in youngsters and youths, prosthetic apparatuses don't need to thwart the improvement of the orofacial framework, and must meet a sufficient tasteful and useful norms. The pediatric dental prosthetic machines must be arranged regarding the unique conditions that lead to loss of teeth.

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1. Introduction

The causes of premature loss of deciduous and permanent teeth may include various genetic diseases (ectodermal dysplasia, Papillon-Lefevre syndrome, and amelodentinogenesis imperfecta, etc.), trauma, early childhood caries, multiple caries and its complications. In a number of cases, defects in dental rows affect the three-biological health indicators - prophylaxis, function (speech and chewing) and aesthetics. Complications, such as migration of the teeth, alveolar bone loss and alteration of occlusion affecting the correct and proportional development of orofacial structures.¹

Due to the hypersensitive nature of children, changes in the appearance of teeth and frequent speaking lead to a change in the psychological state, development emotional changes and difficulties in social adjustment of the child concerned. These in turn can affect a child's general well-being, self-esteem and quality of life.² This is shown by the studies by Feitosa and Al.³ and Martinz et al.⁴ who found that 31.2% of Children who have severe dental disease feel

sad and or are ashamed of their teeth and smiles, they are much more irritable, more likely to miss school, avoid social contact, have more trouble sleeping and perform less good at exercise activities that heal and rehabilitate you Children. Hence prosthetic constructions in childhood. It must meet the anatomical requirements as well as the physiological and psychological characteristics associated with age.^{5,6}

1.1. Prosthesis should fulfil the criteria

1.1.1. Rehabilitation of chewing function and efficiency

It must be conceivable to supplant prostheses missing teeth without influencing the youngster's capacity to bite. They should be appropriately intended to keep away from or limit them, Use it on the contrary dentition.

1.1.2. Protection of dental pulp

Vitality of dental pulp has to be kept conceivable. Prosthesis the restoration must be finished with the most extreme consideration. Disturb the vitality of the tooth it is in (if crucial) than adjoining or inverse teeth. Prosthetic restoration must be checked and balanced normally Consider the development and advancement of the children.

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1.1.3. Aesthetic criteria

Restoration of esthetics is one of the rules Pillars of present day dentistry. Deal with the staff Appearance is significant, particularly for youngsters. In youngsters 1. Notwithstanding, there are later investigations shows that even preschoolers (3 to 5 years) have built up a heart their self-perception and care about the manner in which they are seen by both other kids and grown-ups.⁷

1.1.4. Correct voice function

Missing teeth, particularly the frontal locales can cause erroneous discourse. Missing incisors frequently keep a kid from having the option to discuss dental consonants like "t", "d", "n" and in certain dialects "l". Comparative issues can emerge in kids with cheilo-gnato-palatoschisis. Would it be able to be that lead to the advancement of helpless discourse models that ought to be adjusted with the assistance of a language teacher subsequent to fixing absent or deficient teeth sufficient prosthesis.

1.1.5. Prevention of bad habits

Missing teeth or malignment of the teeth can cause the kid create bruxism (crushing of teeth) or gripped his jaw. These propensities can likewise grow now and then because of agony in certain kids during tooth emission. Indeed, even kids with certain clinical issues Conditions like cerebral paralysis are likewise defenseless to create bruxism. The reason for amplexness prosthesis ought to be kept away from in these cases hurtful propensity that settles and forestalls impediment difficult sensations.

1.1.6. Carry out proper care

If teeth are missing are not replaced by an adjacent prosthesis teeth can migrate into the edentulous alveolar ridge, causing occlusion problems and problems with tooth breakout.

1.1.7. Fixation of loose teeth after trauma

Splints, both yarn and composite or fiber play a crucial role to save teeth that have been loosened by trauma. A detailed X-ray examination should be performed before hooking teeth and usual dentist supervision and control should be maintained duration of the splint to avoid ankylosis.

1.1.8. Stainless Steel Crown

Stainless steel crowns were first offered as a treatment alternative for full dental fillings as right on time as the 1950s.⁸ This first crowns made of nickel-chromium were known to essentially cause an assortment of unfortunate clinical indications because of the allergenic capability of nickel. From that point forward plan by the crowns and metals utilized have changed essentially.⁹ Today, the hardened steel crown is produced using a blend of metals. These incorporate iron, chromium, carbon, and 9% nickel,

likewise to the orthodontic wires. Tempered steel crowns are referred to for their toughness as announced by Prabhakar et al in their in vitro examination.¹⁰ Fundamentally life span of the crown depends on following the right conventions for crown position, particularly as far as edges. In the event that conceivable crown the edge ought to be founded on sound tooth structure and when it is no, at that point in blend or glass ionomer remedial material, As studies have appeared, these two materials show minimal measure of small scale releases.¹¹ Perhaps the most concerning issue with tempered steel crowns have a helpless tasteful appearance, which restricts its utilization to re establishing the essential first and second molars.

1.1.9. Removable prosthesis

It must be with the children gotten ready for the youngster's development and advancement. The structure of the prosthesis must be with the end goal that it is conceivable change if teeth break out or meander. Says that Long periods without a tooth (or false teeth) to fix alveolar and vertical alveolar cycles abandons in places with missing teeth, while ejecting unhindered changeless teeth and tendency of neighboring teeth.¹² Tissue-upheld halfway false teeth are demonstrated when a kid is relied upon to be innocuous for quite a while over a more drawn out timeframe or with bone resorption and the remodel is arranged promptly thereafter horrible extraction or tooth misfortune. They are additionally given in serious instances of hypodontia, the genetic atmosphere, (for example, ectodermal dysplasia) or after medical procedure for sores or tumors. Assembling of prostheses at a youthful age, particularly in cases hypodontia can prompt noteworthy enhancements in appearance, tongue and biting capacities. Positive changes can support individuals' self-assurance in youngster and assists with building up great dietary patterns.¹³

1.1.10. Teeth supported denture

It tends to be imagined in edentulous conditions after tasks for sores or tumors in the area of the lower or upper jaw. In such cases, it would not be alluring to apply pressure on the Gums or bone tissue, as this could bring about the postoperative period. Inconveniences, ulcers and contaminations. Maintenance of false teeth are made utilizing dental locks and false teeth. occlusal delays to limit contact with the least sum conceivable the mucous layers, while the solidness of the prosthesis by the metallic help structure. All planned prostheses must ensure great cleanliness. Safeguarding of the prosthesis and the youngster's oral pit, and guarantee that the encompassing tissue isn't harmed. Customary controls and withdrawals ought to be done each 3 to a half year Changes must adjust and adjust for the development and advancement of the youngster. Loss of front teeth in youngsters and youths is all

the more regularly because of wounds and/or complexities past injury, (for example, ankylosis or root resorption). The focal incisors of the upper jaw are typically teeth. Influenced by injury.¹⁴

1.1.11. Resin bonded restorations

This kind of restoration was first portrayed during the 1970s and since then they have built up a ton in structure and the materials utilized. The principal sort of sap reinforced scaffold was known as Rochette connect which delivered its holder by pitch concrete holding on account of the properties Perforated metal holder. The generally utilized epithet for the consequences of the sap maintenance spans "Maryland Bridge" the sort of electrochemical scratching created in University of Maryland, it just continues improving sap bond on metal amalgam. Lately with the improvement of new materials, conventional metal tar rebuilding efforts start to be surrendered for present day fiber-strengthened Composition. The improvement of fiber items for dental use occurred smooth fiber progress on pre-impregnated fibers, fibers totally impregnated with pitch. The most well-known kinds of The filaments utilized in pitch fortified scaffolds are polyethylene, Kevlar and fiberglass. Also, filaments can be unidirectional, twisted, work/arrange or woven. Various kinds of filaments and textures produce various transformations and reasonability just as different deals capacities multidirectional power. Most clinical preliminaries pitch bound extensions bring about unidirectional filaments, and among these the most ordinarily utilized are glass strands, primarily because of its quality and its style.¹⁵ The utilization of strengthened strands Composite materials are prescribed for pitch reinforced restorations because of their properties great modulus of versatility contrasted with metal and better associate the composite to the structure.¹⁶ The fundamental focal points of gum reinforced scaffolds are theirs Maintaining solid tooth structure without the requirement for it Minimal arrangement, diminished expenses and all in all great patient acknowledgment.¹⁷ They likewise will in general take out Pressure of the mucous films and alveolar edge (instead of Partial dental replacement upheld), which diminishes the hazard alveolar bone resorption and potential inconveniences with future embed treatment.

1.1.12. Zirconia crowns

They are generally new to dentistry, first presented in 2001 by Suttor et al.¹⁸ The material itself has been utilized in medication since the 1960s. In orthopedic use in hip tasks. Zirconia Yttrium¹⁹ settled zirconia is utilized in dental crowns. This gives the dental zirconia the most flex quality of all zirconia-based materials, protection from synthetic substances and disintegration. Additionally, the material is biocompatible, hypoallergenic and with a comparative timeframe of realistic usability like regular tooth veneer. Since they can't be balanced (not normal for Stainless

steel crowns), zirconium oxide crowns for child teeth. They are pre-assembled with specific properties. Thusly it is significant that an example fit the crown of the front cast. Established for arrangement, edge and Occlusion. Superb tasteful appearance of Pre-projected zirconia crowns make them completely usable rebuilding efforts in the foremost and back zone with great toughness and administration life as Ashima shows et al.²⁰

2. Conclusion

Childhood and adolescence represent a period of intense growth and development of orofacial system. In such gentle period, replacement of missing teeth is of vital clinical importance, and variety of materials and restoration design options exist to ensure that proper chewing, aesthetics and pronunciation are achieved. Adequate prosthetic restoration in children or adolescents must not in any way hinder proper development of jawbones, dental arches and permanent teeth.

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4. Conflict of Interest

None.

References

1. Vulićević Z, Beloica M, Kosanović D, Radović I, Juloski J, Ivanović D, et al. Prosthetics in Paediatric Dentistry. *Balk J Dent Med.* 2017;21(2):78–82.
2. Attari N, Roberts JF. Restoration of Primary Teeth with crowns: a systematic review of the literature. *Eur Arch Paediatr Dent.* 2006;1(2):58–62.
3. Feitosa S, Colares V, Pinkham J. The psychosocial effects of severe caries in 4-year-old children in Recife, Pernambuco, Brazil. *Cadernos de Saúde Pública.* 2005;21(5):1550–6.
4. Martins LGT, Pereira KCR, Costa SXS, Traebert E, Lunardelli SE, Lunardelli AN, et al. Impact of Dental Caries on Quality of Life of School Children. *Pesquisa Bras em Odontopediatria e Clín Integrada.* 2016;16:307–12.
5. Haskins DR. Pediatric Dental Rehabilitation Procedures in the OR. *AORN J.* 1996;64(4):573–9.
6. Korchagina V. Achievement of maximum dental health of children by the introduction of modern technologies. [Disertation]. Moscow (RU): Moscow State university of Medicine and Dentistry; 2008.
7. Tremblay L, Lovsin T, Zecevic C, Larivière M. Perceptions of self in 3–5-year-old children: A preliminary investigation into the early emergence of body dissatisfaction. *Body Image.* 2011;8(3):287–92.
8. Engel RJ. Chrome steel as used in children's dentistry. *Chron Omaha Dist Dent Soc.* 1950;13:255–8.
9. Noble J, Ahing SI, Karaiskos NE, Wiltshire WA. Nickel allergy and orthodontics, a review and report of two cases. *Br Dent J.* 2008;204(6):297–300.
10. Prabhakar AR, Yavagal CM, Sugandhan S, Chakraborty A. Finite Element Stress Analysis of Stainless Steel Crowns. *J Indian Soc Pedodontics Prev Dent.* 2015;33(3):183–91.
11. Derafshi R, Memarpour M, Razavi M. Comparison of microleakage from stainless steel crowns margins used with different restorative materials: An in vitro study. *Dent Res J.* 2016;13(1):7–12.

12. Jepson NJ, Nohl FS, Carter NE, Gillgrass TJ, Meechan JG, Hobson RS, et al. The interdisciplinary management of hypodontia: restorative dentistry. *Br Dent J.* 2003;194(6):299–304.
13. Bhalla G, Agrawal KK, Chand P, Singh K, Singh BP, Goel P. Effect of Complete Dentures on Craniofacial Growth of an Ectodermal Dysplasia Patient: A Clinical Report. *J Prosthodont.* 2013;22:495–500.
14. Borum MK, Andreasen JO. Therapeutic and economic implications of traumatic dental injuries in Denmark: an estimate based on 7549 patients treated at a major trauma centre. *Int J Paediatr Dent.* 2001;11:249–58.
15. Dyer SR, Lassila LV, Jokinen M, Vallittu PK. Effect of fiber position and orientation on fracture load of fiber-reinforced composite. *Dent Mater.* 2004;20:947–55.
16. Burke FJ. Resin-retained bridges: fibre-reinforced versus metal. *Dent Update.* 2008;35:521–2.
17. Vallittu PK, Sevelius C. Resin-bonded, glass fiber-reinforced composite fixed partial dentures: A clinical study. *J Prosth Dent.* 2000;84(4):413–8.
18. Suttor D, Bunke K, Hoescheler S, Hauptmann H, Hertlein G. LAVA—the system for all-ceramic ZrO₂ crown and bridge frameworks. *Int J Comput Dent.* 2001;4:195–206.
19. Choi JW, Bae IH, Noh TH, Ju SW, Lee TK, Ahn J, et al. Wear of primary teeth caused by opposed all-ceramic or stainless steel crowns. *J Adv Prosthodont.* 2016;8:43–52.
20. Ashima G, Sarabjot KB, Gauba K, Mittal HC. Zirconia Crowns for Rehabilitation of Decayed Primary Incisors: An Esthetic Alternative. *J Clin Pediatr Dent.* 2014;39(1):18–22.

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