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Maintaining Oral Health and Preventing Dental Injuries in Children

Importance of oral hygiene, preventive care, and management of oral health problems in children aged 7 to 12 years

Dental and oral diseases are highly prevalent in children[1]

Dental disorders affect the teeth, gums, mouth, throat, and face

Oral diseases impair an individual's ability to bite, chew, smile, and speak

Poor oral health can negatively affect children's health and social well-being

Oral health problems can affect different oral tissues within the oral cavity[1]

Most common dental and oral health problems in children

Caries (hard tissue disease)

Caries is the most common childhood disease and 21% of children between 6 and 11 years develop cavities in their permanent teeth[2]

Gingivitis, in most cases, is mild, asymptomatic, and does not lead to progressive periodontal disease and tooth loss

Periodontal diseases (soft tissue diseases)

Periodontal diseases affect around 50% of children between the ages of 6 and 11 years old[3]

Severe forms of periodontal diseases are extremely rare in children[4]

Between the ages of 7 and 12, children should start brushing their own teeth with a manual or electric toothbrush* with adult supervision

The caries incidence is 1.4 times higher for those using manual toothbrushes compared to oscillating-rotating electric toothbrushes[5]

*There is scientific evidence to recommend oscillating-rotating electric toothbrushes to paediatric dental patients

Clinical assessment of oral health problems in children[1]

Decayed, missing, and filled primary teeth (dmft) index for caries

Gingival index and community periodontal index for periodontal disease

Regular monitoring for oral health problems is necessary to effectively manage children's developing dentition

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Effective oral health care for children includes promoting a permanent dentition in a stable, functional, and aesthetic occlusion[6]

- Malocclusion or misaligned teeth can adversely affect children's quality of life (QoL) by negatively affecting mastication, swallowing, speech, and self-image
- Child Perception Questionnaire for 8- to 10-year-olds (CPQ8-10) can evaluate oral health-related QoL

Early diagnosis and treatment of malocclusions can improve occlusal harmony, function, and dentofacial aesthetics in the short and long terms[6]

Prevalence[7]

- Malocclusion has a worldwide prevalence of 56% among children and adolescents
- In Europe, the prevalence has been reported to be ~71%

Early clinical examination and accurate diagnosis[6]

- Analysis of facial features and structure
- Examination of the oral cavity
- Functional analysis to determine factors associated with malocclusion, deleterious habits, and temporomandibular joint dysfunction

Causes of malocclusion or protrusion of upper teeth[6,8]

- Dental and skeletal factors
- Thrusting of the tongue
- Abnormal position of the tongue
- Deviation in swallowing pattern
- Early loss of primary teeth
- Dental trauma
- Crowded arches
- Abnormal tooth morphology
- Digit sucking

Types seen in clinics[8]:
Deep overbite, midline deviation, excessive overjet, crossbite, mal-alignment, lack of space, and open bite

Factors affecting malocclusion treatment[6]

- Age of the patient: Chronologic, mental, and emotional
- Ability of the patient to cooperate during treatment
- Oral habits and hygienic practices
- Parental support
- Craniofacial characteristics
- Comorbidities
- Accuracy of diagnosis and duration of treatment

First permanent molars (FPM) in children[9,10]

- Prone to developing caries, enamel breakdown, and dentine hypersensitivity
- Molar incisor hypomineralisation (MIH) is common in FPMs and incisors
- Negatively impacts a child's QoL
- 5% of 8-year-olds are affected by caries in their FPMs
- PM is the most caries-prone tooth
- FSs can also be used to arrest and control occlusal dentin caries lesions
- For children >6 years of age, toothpaste with 1,450 ppm fluoride, such as stannous fluoride, should be used, up to the full-length of the toothbrush[11]

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Prevention and treatment of compromised FPMs[9]

- Clinical examination of affected FPMs
- Topical fluoride varnish regimens
- Use of fluoride toothpaste (age-appropriate concentration to be used)
- Following appropriate dietary advice
- Composite resin-based restoration or preformed metal crown
- Dental extraction

Treatment planning for children with caries and/or hypomineralised FPMs involves taking into account social, behavioural, medical, and dental factors, as well as child and family preferences[9]

Prevention and treatment of compromised FPMs: Individual roles and responsibilities[9]

Dental professionals[12]

- Build trust with paediatric patients and their families
- Engage with schools and practices to raise awareness of oral health practices
- Engage with community health promotion activities

School authorities[12]

- Raise awareness about the ideal practices for oral health and hygiene
- Support families in adopting the best oral health practices
- Ensure wider reach of health promotion activities

Children and parents[12]

- Learn together about oral health practices
- Be involved and motivated to improve oral hygiene and dietary habits

MIH in children[13]

- At least one FPM has to be affected for a diagnosis
- One to all four permanent FPMs have enamel hypomineralisation
- Predominantly affects the FPM
- High incidence of severe caries in MIH-affected teeth

Treatment and management of MIH[14]

- Early identification of MIH and prevention of caries are key
- Topical fluoride varnish placement and frequent follow-ups
- Teeth restoration using composite material or preformed metal crown

Dental injuries in children[15]

- Sports-related injuries and altercations are the most common causes
- Trauma to primary teeth can cause pain and disrupt permanent dentition development
- Injuries can range from a simple enamel chip to an extensive maxillofacial trauma
- Can have functional, psychological, and social impact on patients

Hard tissue injuries[16,17]

- Infraction
- Crown fracture (enamel and/or dentin)
- Root fracture
- Alveolar bone fracture

Periodontal tissue injuries[16,17]

- Concussion (shock)
- Subluxation
- Intrusion (pushed into the alveolar bone)
- Extrusion (partially out of the socket)
- Lateral luxation
- Total luxation (exarticulation or avulsion)

There is a higher risk of pulp necrosis in teeth with combination injuries, where fractures and luxations occur simultaneously, or in teeth with complete root development and closed apex[13]

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Prevention[18]

- Wearing a mouthguard helps prevent or reduce traumatic dental injuries as well as the risks of orofacial trauma
- It is recommended to use properly fitted mouthguards
  - **Types of mouthguards[19]:** | Pre-fabricated | Mouth-formed | Custom-made

Managing dental trauma[15,18]

- Treatment is challenging because of varying kinds and types
- An avulsed primary tooth (tooth out of socket) should not be replanted but an avulsed permanent tooth requires replantation
- Immature permanent teeth should be preserved to ensure continuous root development
- Treatment can be affected by the child's maturity, as well as the time for exfoliation of the injured tooth and occlusion

Barriers to prevention[18,19]

Many sports participants do not wear a mouthguard owing to forgetfulness and/or discomfort

Individuals who wear mouthguards may be unaware of which type provides the most protection

Role of parents and caregivers[15]

Parents and caregivers must be educated about dental injuries so they can recognise the signs and symptoms and seek appropriate professional help

Awareness of mobile applications and trauma guidelines should be raised to increase parents' and coaches' knowledge

Parents should be educated on home care advice for optimal healing and avoiding contact sports to prevent further injury

Key message

The prevention, management, and treatment of oral health problems in children is a multifaceted and holistic approach that involves building trust and cooperation amongst dental caregivers, parents, and children

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