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Baby Teeth Are Not Disposable

Scientific supervisor: **Asatullayev Rustamjon Bakhtiyarovich**
Student: **Jumaboyev Jurabek**
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Abstract. Primary ("baby") teeth are often treated as temporary and therefore unimportant. This article summarises current scientific evidence showing why that belief is mistaken. Primary teeth support chewing, speech and facial appearance, and they hold space for and guide the permanent teeth. When they decay, become infected or are lost too early, children may suffer pain and poor sleep and eating, and the developing permanent teeth can be damaged or crowded. Children with decay in primary teeth also have about three times higher odds of developing decay in permanent teeth. Simple, inexpensive measures – an early dental visit, fluoride toothpaste, limited sugar and prompt treatment – protect both sets of teeth.
Keywords: primary teeth; deciduous teeth; early childhood caries; premature tooth loss; space maintainer; paediatric dentistry; prevention

A common belief holds that baby teeth do not deserve much attention because they will fall out anyway. The scale of the problem shows what this belief can cost. According to the World Health Organization (WHO), about 514 million children worldwide have caries (tooth decay) in their primary teeth, and untreated decay is the most common health condition on the planet, affecting an estimated 2.5 billion people of all ages [1]. A meta-analysis of studies published between 1995 and 2019 put the worldwide prevalence of caries in primary teeth at roughly 46% [2], and a systematic review using WHO criteria found that almost half of pre-school children have early childhood caries (ECC), defined as decay in any primary tooth of a child younger than six years [3]. This article answers three practical questions. What do primary teeth actually do? What happens to the child, and to the permanent teeth, when primary teeth are diseased or lost early? And what can families and dentists do about it? A child has 20 primary teeth. They begin to erupt at about six months of age, and the set is usually complete at around two and a half to three years [4]. The front teeth are replaced at about 6–7 years, but the canines and back molars stay in the mouth until roughly 10–12 years. A decayed molar therefore may have to serve the child for close to a decade – "it will fall out soon" is rarely true for the back teeth. The main functions of primary teeth are summarised in Table 1.

Table 1. Functions of primary teeth

Function	What the teeth do	What can go wrong with early loss or disease
Chewing and nutrition	Grind and tear food so that a child can eat a varied diet during a period of rapid growth.	Pain and poor chewing reduce food intake and variety [5].
Speech	Front teeth help the tongue and lips form sounds such as "t" and "th".	Gaps from early loss of front teeth may disturb pronunciation.

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Appearance and confidence	Contribute to a healthy smile and normal facial appearance.	Visible decay and tooth loss can make children self-conscious [5].
Function	**What the teeth do**	**What can go wrong with early loss or disease**
Jaw growth	Chewing forces stimulate the growth of the jaw bones and the development of the dental arches.	Reduced stimulation and loss of arch space [6–8].
Guiding permanent teeth	Act as natural "space keepers"; permanent teeth develop beneath and between their roots and follow their path.	Drifting neighbours, crowding, impaction, enamel defects and eruption problems [6, 11, 12].

When a primary tooth is lost too early because of decay, infection or injury, the neighbouring teeth can tilt or drift into the gap. The space intended for the permanent tooth becomes smaller, and the successor may erupt out of line, become blocked (impacted) or require orthodontic treatment later. For this reason the American Academy of Pediatric Dentistry (AAPD) regards space maintenance as a best practice after premature loss of a primary molar that cannot be restored [6]. A space maintainer is a small fixed or removable appliance that keeps the gap open until the permanent tooth is ready to erupt; several designs exist, each with its own indications and limitations [9].

The evidence is not completely one-sided, and a balanced article should say so. After early loss of a primary first molar, studies usually find a statistically significant loss of space, but whether it is clinically significant is debated [7]. Some longitudinal studies concluded that a maintainer is necessary [8, 10], whereas other authors note that when the first permanent molars are well interlocked, space loss may be minimal [6]. Systematic reviews stress that the decision depends on the individual child – for example the amount of crowding, the facial pattern, the bite relationship and the time since the tooth was lost [7, 8]. The practical message is that early loss of a primary tooth should be assessed by a dentist case by case; it should neither be ignored nor automatically treated in the same way for everyone.

The buds of the permanent teeth develop in the jaw very close to the roots of the primary teeth. Infection at the root tip of a primary tooth, or an injury to it, can therefore reach the developing successor. A recent systematic review reports that periapical infection of primary teeth is associated with enamel defects (hypoplasia and hypomineralisation), eruption abnormalities, malformed or poorly developed roots, ankylosis and, in some cases, follicular cysts [11]. A separate systematic review of trauma to primary teeth found that enamel discolouration and hypoplasia were the most frequent consequences in the permanent teeth, that intrusion of the primary tooth was the most damaging type of injury, and that the outcome depends on the child's age, the type and extent of the injury and the developmental stage of the permanent tooth [12]. A single permanent tooth with such a localised defect is traditionally called a "Turner's tooth".

Decay in baby teeth also predicts decay in the permanent teeth. A meta-analysis of ten cohort studies found that every study showed a higher risk, and that children with early childhood caries had about three times higher odds of developing caries in their permanent teeth (odds ratio 3.22; 95% CI 2.80–3.71), particularly when lesions in primary molars had progressed into dentine [13]. A more recent cohort of primary-school children found caries experience in permanent teeth in 15.4% of

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children who had decay in primary teeth, compared with 4.9% of those who did not (adjusted risk ratio 2.8) [14]. Possible explanations include the spread of cariogenic bacteria to newly erupted teeth [13] and shared diet and hygiene habits.

Untreated decay is not a cosmetic problem. A widely cited review concluded that children with severe caries weighed less than comparison children and gained weight faster after their teeth were treated, and that their oral-health-related quality of life was poorer [15]. The proposed mechanisms are plausible: eating becomes painful so intake falls, pain disturbs sleep, and chronic infection places a burden on the body [15]. A later narrative review links early childhood caries to difficulty chewing, pain, sleep problems and school absence, and concludes that untreated severe caries is potentially associated with poorer growth and development [5]. A systematic review and meta-analysis of school-aged children also found that poor oral health, including caries and oral pain, is associated with more school absence and poorer academic performance [16].

It is fair to add a caution: most of this evidence is observational, so it shows an association rather than proof that tooth decay is the sole cause of poor growth or school results. Even so, the consistent direction of the findings is a strong reason not to leave painful teeth untreated. The same pattern is visible in Uzbekistan. In a study of 478 children aged 3–6 years in six kindergartens of the Bukhara region, in which children were screened with or without education of their parents, new carious lesions continued to appear in both groups and the proportion of untreated teeth was higher than the proportion of filled teeth [17]. This illustrates that finding decay is not enough: families need to understand why baby teeth matter, and treatment must be accessible and acceptable to them.

The following measures are supported by international guidelines:

- **Visit the dentist early.** The first dental examination should take place when the first tooth erupts and no later than 12 months of age, followed by regular check-ups [18].
- **Brush with fluoride toothpaste** twice a day from the first tooth, with a parent doing or supervising the brushing; use only a small smear for toddlers and a pea-sized amount from about three years of age [20].
- **Use professional fluoride varnish.** Fluoride varnish applied to primary teeth from the time they erupt until age five reduces decay and is recommended by the US Preventive Services Task Force [19].
- **Limit free sugars.** WHO recommends keeping free sugars below 10% of total energy intake, with additional benefit below 5% [21]. Sugary drinks and frequent sweet snacks are particular risks; water is the best everyday drink.
- **Treat decay promptly.** Fillings, pulp treatment or, when needed, extraction with a plan for space management are better than waiting for the tooth to "fall out" [6, 11].

Baby teeth are temporary in the mouth but not in their effects. They allow a child to eat, speak and smile, they reserve and guide the space for permanent teeth, and their health is closely tied to the health of the permanent dentition and to the child's comfort, sleep, nutrition and schooling. Because tooth decay is largely preventable, the most effective approach is simple: start dental care early, brush with fluoride toothpaste, reduce sugar and treat problems before they become infections. Caring for baby teeth is an investment in a lifetime of oral health.

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