



Revolutionize Your Oral Care Routine - A Short Review on Toothpastes in Children

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ABSTRACT

Daily tooth brushing lays the foundation for healthy teeth (along with flossing and regular dental visits). But choosing the right toothpaste during shopping can be overwhelming. Entire aisles are devoted to the many monotonous varieties of this seemingly-simple tooth-cleaning pastes in grocery stores, drug stores, and just about every other kind of store. With all of these potential choices, it's easy to get confused. The toothpaste is only part of a complete dental health regimen. Regular flossing and dental checkups are absolutely essential to maintain the health of the teeth. This article intends to throw light on the types and use of tooth pastes in children.

Key Words: Pediatric dentistry, Oral hygiene, Tooth paste, Flavored tooth paste, Tooth whitening, Preventive dentistry

INTRODUCTION

It is important to maintain oral hygiene in childhood & adolescence. A toothpaste is a semi-solid material that is designed for removing naturally occurring deposits from teeth and is to be used simultaneously with a good technique of tooth brushing. Centers for Disease Control and Prevention (CDC) recommends that brushing teeth twice daily with a fluoride toothpaste reduces the risk for dental caries. The participants in American Dental Association Council meeting recommended the use of fluoride tooth pastes for dental caries prevention.¹

We have oral cleaning products in different forms of tooth gel, toothpaste, and toothpowder. Formulations with salt, charcoal-activated beads, whitening properties, de-sensitizing, ayurvedic, different colors, flavors, for kids, adults, and so on and so forth. Thus choosing a simple product like toothpaste is quite a daunting task, especially with the numerous advertising claims made by various brands. The only thing we can do is to thoroughly understand the facts behind the hype and make a knowledgeable decision on which toothpaste to purchase.

PROPERTIES OF TOOTHPASTE

Some of the ideal properties of toothpastes are: They are easily washed off from the teeth, mouth & toothbrushes and they should have anticaries property. Toothpaste should facilitate the removal of dental plaque and should have good cleansing properties and acceptable flavour. It should eliminate tooth sensitivity and protect the teeth against periodontal diseases.

TYPES OF TOOTHPASTES

Having knowledge about different types of tooth pastes helps in improving oral hygiene.²

ANTI PLAQUE & ANTI-MICROBIAL TOOTHPASTE

Dental plaque is a soft deposit that forms the biofilm adhering to the tooth surfaces or other hard surfaces in the oral cavity including removable and fixed restoration. Its important to remove it through regular dental cleaning, daily

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brushing and flossing. Triclosan & sodium fluoride are the common antimicrobial agents which are available commercially. Triclosan is a preservative that prevents the growth of microbes & which prevents the inflammation and growth of gums. It also has the adverse effect of proliferating breast cancer & increasing tumor volume and it makes the body more vulnerable to cancer.

Mohammed Nadeem Ahmed Bijle et al. in the year 2019 conducted a study to investigate the antibacterial effect of Arginine in NaF toothpaste. From his study, he concluded that, the incorporation of 2% Arginine in NaF toothpaste significantly enhances the antimicrobial effect against caries generating bacteria (*S. mutans*).³

TOOTHPASTE WITH FANCY FLAVORS

Most flavored toothpastes are made for children to increase their tendency to brush. The awareness on caries prevention and protection against dental caries is negligible among children. Sahil Choudhari et al. in the year 2020 conducted a survey with 787 school children aged between 5 and 12 years on their perspective of toothpaste color, smell, flavor. From his study he concluded that the children prefer red color, fruity smell, and sweet flavor.⁴ The various flavors of toothpastes available for children are bubble fruit, wild strawberry, bubble mint, fruit fusion, chocolate mint etc.

If the child swallows a tiny bit of toothpaste, nothing to worry about. But if the child swallows more than that, they might get a stomach ache and nausea. The regular consumption of fluoride toothpaste before the age of six may cause dental fluorosis.

WHITENING TOOTHPASTES

One of the key functional ingredient in whitening toothpastes is the abrasive system. It is effective in removal of the extrinsic stains from the hard tissues. Peroxide is believed to be a bleaching agent. Sodium Tripolyphosphate in some toothpaste breaks down the pigment in enamel and tooth seems to get whiter.⁵ Higher the use of toothpaste, it causes enamel wear, abrasion and also makes the tooth surface appear yellower due to dentin exposure.

Fabiano Vieira Vilhena et al. in the year 2022 conducted an in vitro study to investigate the whitening potential of commercially available and experimental toothpastes containing optical colorants in their formulations. A total of 125 recently extracted sound bovine teeth were selected and divided into five groups according to the treatment (1) experimental PHTALOX dental gel; (2) experimental blue silica dental gel; (3) Sensodyne whitening Repair and Protect; (4) Sensodyne True White; (5) Snow White Toothpaste. From his

study, he concluded that whitening toothpastes containing optical colorants are effective at bleaching the enamel.⁶

SENSITIVE TEETH TOOTHPASTES

Although there are many known causes of tooth sensitivity, only two ingredients – strontium chloride and potassium nitrate – have been recognized by the ADA as effective treatment modalities for sensitive teeth and gums. When used as directed, these substances can build up blockages in the dentinal tubules between the tooth's surface and inner nerves thereby restricting the fluid movement of the dentinal tubules. And, though effective, relief may consume some time as the blockages build up. In addition, those who are prone to canker sores, those with sensitive teeth, should generally avoid toothpastes which contain sodium lauryl sulfate as an ingredient.

ABRASIVE TOOTHPASTE

The abrasive toothpaste helps to scrub off the food particles and dental plaque and to remove surface stains from child's teeth. It includes silicone dioxide, potassium and aluminium silicate. Brushing with severe pressure is not advisable because of the possibility of tooth erosion which in turn causes damage to enamel, dentin resulting in sensitivity of tooth and makes it more prone to dental caries.^{7,8}

Johannsen et al. in the year 2013 conducted a study to evaluate the relative abrasive property of different toothpastes and polishing pastes both qualitatively and quantitatively. It was done in the various specimens of enamel and dentin. Furthermore, it can be concluded that so called "whitening" toothpastes do not necessarily have a higher abrasive effect than other toothpaste.⁹

HERBAL TOOTHPASTE

Herbal toothpaste can eliminate the bacteria in the oral cavity naturally without using harmful chemicals. Xylitol in some toothpastes have been effective against caries. It is safe, even it is swallowed by kids & adults as the synthetic materials in this toothpaste is completely harmless. Their effect on prevention of dental caries is same.

Chandrashekar Janakiram in the year 2020 conducted a study to assess the effectiveness of herbal oral products in reducing dental plaque and gingivitis. At last he concluded that for short-term reduction in dental plaque, current study suggests that herbal toothpaste (HTP) is as effective as compared to non-herbal toothpaste.¹⁰

NECESSITY OF USING TOOTHPASTE FOR CHILDREN

In children and adult, flouride containing tooth paste is effective in preventing caries. Fluoride is a naturally occurring mineral that is extremely effective in preventing cavities in teeth. Variety of flavors of fruits and gelatinous toothpaste makes them interested in brushing. To encourage the children to improve oral hygiene, parents should allow the child to select the toothbrush & tooth paste.

APPLICABLE AMOUNT OF TOOTHPASTE IN CHILDREN

Use a toothpaste of pea size and ask the child to spit out after tooth brushing. Flouride in toothpaste should not exceed 1000 ppm and high flouride content toothpaste is not advisable. There is no problem in using tooth paste in excess, ingestion of flouride toothpaste may increase the risk of tooth changing in color from white to yellow spots on the surface.

CONCLUSION

In the researchers point of view, there is inequality & variation of percentage of abrasive materials, composition and antibacterial substances in toothpastes. Regular tooth brushing is important for both children & adults. This leads to elimination of bacteria and plaque that causes decay and periodontal diseases.

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