

The Useful Fruits and Vegetables for Children's Oral Health

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Introduction

Fruits and vegetables are beneficial for dental health, so parents should keep in mind that they have to put these nutrients in children's daily diet. The vitamins, minerals and antioxidants in these foods protect the gums and teeth. The time and how to consume food and beverages affect children's health and general conditions. Bacteria in the mouth can damage the health of the teeth, especially if children do not brush or floss their teeth after eating. It is emphasized that kids eat fruits and vegetables at the end of each meal for having healthy teeth, as these foods are high in water and help keep teeth and gums clean.

There is a belief from the past that ending a meal with hard food or fruit may decrease oral diseases such as dental caries and gum diseases [1,2].

In this short article, we tried to gather information about some useful fruits and vegetables to help the parents.

Apple

It is also called natural toothbrushes, which are a good choice for a snack or lunch because of their fibrous texture. Although apples cannot be a substitute for toothbrushes or floss, consuming this food can help keep teeth clean till the kid's brushing time. Apple juice may be associated with tooth decay, cervical sensitivity of teeth, decalcifications; erosion, attrition, and abrasion of the teeth due to additive sugars and ascorbic acid [3-5], but with consumption of fresh apples are less likely to cause such problems. Chewing this fruit stimulates the gums and reduces caries-causing bacteria, and increases saliva flow [1]. Saliva reduces the acidity of the mouth, removes food particles from the teeth, and could prevent caries caused by dry mouth.

Some studies performed in humans have indicated that the polyphenols present in apples have inhibited plaque formation [6]; it may have significant anti-cariogenic properties to inhibit glucosyltransferase activity and bacterial adherence [7,8].

Citrus fruits

These kinds of fruits including Oranges, Lemons, Grapefruits, Pomelos, and Limes are good for the body's general health because they provide plenty of vitamin C for the body. Vitamin C deficiency in people may be accompanied by bleeding gums that have been observed in scurvy patients, which can lead to gingival tissue damage. Further, bone formation in children is also altered and becomes brittle. A lack of vitamin C means that new collagen cannot be formed.

Vitamin C deficiency causes a weakening of collagenous structures, causing tooth loss, joint pain, inflamed peri-follicular hemorrhages, bleeding gums, bone, and connective tissue disorders, and poor wound healing [9-12].

Hence, parents should put fresh citrus fruits in children's diet. Chewing fresh fiber-rich fruits massages the gums, cleans teeth, and stimulates saliva secretion, which can neutralize Citric and Malic acids in the mouth caused by citrus consumption.

Carrots, celery, and root vegetables

Chewing carrots, Celery, and other hard, fibrous vegetables can increase the saliva. Salivary secretion can be stimulated by the hardness and the size of the object being chewed, and also the chewing force [13-16]. Healthy and strong gums are important for maintaining healthy teeth. Carrots and celery are good a source of Beta-Carotene, which is needed to make vitamin A in the body and is essential for the structural development of strong teeth [17]. Some hypoplasia and pits on the surface of the enamel correlate to a lack of vitamin A [17]. One way to protect children's teeth is to eat fresh and raw vegetables at the end of each meal such as carrots, radishes, and beets.

Green leafy vegetables and cabbages

Green leafy vegetables such as Cabbage, Beet leaves, Collard (cabbage and broccoli), Endive, Lettuce, Kale, Mustard, Asparagus, Spinach, and Watercress contain vitamins and minerals essential for general health [18]. The nutrients in dark green foods include vitamin A, vitamin C, beta-carotene, phosphorus, calcium, and magnesium [18]. Spinach and other green leafy vegetables are also high in magnesium. Broccoli, Cauliflower, Brussels sprouts, and kale are rich in vitamin C and also contain phosphorus [18]. Phosphorus is stored in bones and teeth, and also helps maintain the body's balance and absorption of calcium and magnesium.

Calcium plays an important role in making the jawbones healthy so that teeth keep in place. However, calcium needs phosphorus to maximize its bone-strengthening benefits. Children's teeth should be nourished with adequate calcium and phosphorus to develop a hard structure during growth [19].

Vitamin D regulates the body's balance of calcium and phosphorus and can promote absorption. Vitamin D can also help to decrease inflammation of gums which is associated with periodontal disease [19].

Other useful fruits

Watermelon eliminates inflammation and acts as an antioxidant. It quenches thirst in hot weather so which provides the lost water of the body. It is also a rich source of vitamin A in the form of beta-carotene and vitamin C, a good source of vitamins B1, B6, B5, pantothenic acid, biotin, magnesium, potassium, and Lycopene [20]. Furthermore, watermelon has dietary fiber with a high nutritional value which strengthens the teeth and cleans both teeth and gums. It also improves oral health and reduces gum disease.

Vitamin B deficiencies affect oral structures. A common oral effect of vitamin B (complex) deficiency is a burning mouth sensation, especially on the tongue. The other oral symptoms include cracked and red lips, inflammation of the oral cavity and the tongue, oral ulcers, angular Cheilitis, and a sore throat. The body requires iron, vitamin B-12, and folic acid to produce healthy red blood cells within the bone marrow. A deficiency of vitamin B-12 or folic acid results in immature red blood cells which leads to pernicious anemia. Riboflavin deficiency causes Ariboflavinosis, which manifests as cracked lips, inflammation of the tongue, and dryness or burning of the oral cavity [21-25].

Lycopene is a red pigment present in vegetables such as tomatoes, carrots, and watermelons. A study by Chandra., *et al.* suggested that Lycopene supplementation may increase the improvement of periodontal health [26]. Other studies indicated a possible therapeutic role of Lycopene in the management of periodontitis [27,28].

Strawberries are a powerful teeth whitener that contains vitamin C. Strawberries effectively help to remove stains on the tooth surface while vitamin C cleans teeth by removing plaque. This fresh fruit contains Malic acid and Ellagic acid, which eliminates the discoloration of the tooth surface [29-31].

This fruit, if combined with baking soda, becomes a natural cleanser for teeth. To do this, mash a strawberry and mix it with baking soda. Using a soft toothbrush, apply the mixture to the teeth. Wait 5 minutes, then brush with a regular toothbrush and rinse your mouth. This can be repeated weekly [32].

Fruits such as oranges, pears, watermelons, and other saliva-producing foods can also help keep the mouth clean. Fruits rich in vitamin C, including Pineapple, Tomatoes, and Cucumbers should be considered in children's daily regimen.

Conclusion

Fruits and vegetables are an important part of a balanced diet and are also useful for the development of tooth structure. Because fruits and vegetables are high in water and fiber, their sugar content is adjusted and consumption of them helps to have healthy teeth.

Chewing vegetables stimulates saliva secretion. Saliva removes harmful and cariogenic acids and food particles from the surface of the teeth.

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