

The amazing periodontal health benefits of apples

Sir,

Apples are one of the most popular fruits in the world. At present, there are at least 7500 different varieties that vary in shape, color, texture, firmness, crispness, acidity, juiciness, sweetness, nutritional value, and harvesting period.^[1]

Apple trees are valued not only for their delicious fruits, but also for their wood that is used for making mallet heads and golf clubs. Pieces of apple wood add excellent flavor for smoking foods, and the split wood make ideal fire logs.^[1]

Apples are considered to have medicinal values due to various nutrients present like quercetin, phytonutrients and flavonoids, which help to keep many diseases away. The proverb “an apple a day keeps the doctor away” rightly justify the saying.^[2]

Quercetin, primarily found in apples, onions, and black tea belongs to a group of plant pigment flavonoids that serve as a building block for other members of the flavonoid family. It combats the destructive “free radical” molecules that play a part in many diseases.^[3] A study showed a decreased incidence of lung cancer in individuals who consumed apple products.^[4] Apples are a good source of potassium, folic acid, and vitamin C. A medium apple, approximately 5 ounces, has only 81 calories and a whopping 3.7 g of fiber from pectin, a soluble fiber. A medium apple supplies 159 mg of potassium, 3.9 mcg of folic acid, and 7.9 mg of vitamin C and 9.6 mg of calcium. In addition, there are trace amounts of B vitamins, iron, magnesium, and zinc.^[5]

It is also considered that they are also good for oral health. They are likely to contain condensed tannins that have anti-adhesion properties that may help prevent periodontal or gum disease because they inhibit some bacteria from bonding to each other and producing dental plaque. The antibacterial action of tannins is due to their attack on the lipid cell membrane of the bacteria that induces bacterial cell to fuse and thus resulting in the death of the cell.^[6]

Grobler and Blignaut^[7] conducted a research on 95 apple farm workers, 109 workers from grape farms and 50 controls employed in the grain farms and came to a conclusion that periodontal health appeared worse in the control than the other two fruit workers.

A study conducted by Manchanda and Naganandini^[8] among apple farmers showed that only 65.4% of the

subjects had calculus which was lower when compared to the National Oral Health Survey^[9] conducted in Himachal Pradesh, where 89.9% of the subjects had calculus. When the loss of attachment was considered, 74.3% subjects had no loss of attachment, 18.8% subjects had 4–5 mm loss of attachment and 3.3% subjects had 6–8 mm loss of attachment; whereas the National Oral Health Survey^[9] in Himachal Pradesh reported that 6–8 mm loss of attachment was the most prevalent form. When the pocket depth was recorded, it was seen that 22.4% of the subjects had 4–5 mm pocket depth 2.0% of the subjects had pocket depth up to 6 mm or more. This was comparatively less when compared with the National Oral Health Survey^[9] where 39.3% of the subjects had 4–5 mm pocket depth and 28.0% of the subjects had pocket depth up to 6 mm or more. The plaque score of the subjects in the study by Manchanda and Naganandini was 0.9.

As plaque plays a crucial role in the development of periodontal problems, we can derive at a hypothesis that apples are beneficial for periodontal health.

FUTURE RESEARCH DIRECTIONS

Further analytical studies should be carried out to test the stated hypothesis “apples are good for the oral health as they help in a reduction of dental plaque.” The study can be carried out on:

- With the same population during the different season to clarify the association between the apple consumption and reduction in the plaque scores
- Different population of farmers as controls along with matching done regarding the various confounding factors (sociodemographic details, oral hygiene practices, and dietary habits).

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