

## Orthodontics and nutrition

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### Abstract:

The orthodontic patients avoid many types of food, particularly fruits, raw vegetables and other hard and tough foods, as they cannot chew these properly, because of pressure sensitivity of the teeth in the initial 3 -5 day period after routine. As a result, such individuals consume significantly less proteins and other key nutrients, fiber, calcium, non-haem iron and some vitamins. This paper presents an overview of the relationship between diet and orthodontic treatment. The nutritional guidelines to obtain good oral and general health in orthodontic patients are discussed.

**Key words:** Orthodontics, nutrition, fruits, vegetables.

### Introduction:

A diet that contains adequate amounts of all the necessary nutrients required for healthy growth and activity is a balanced diet. The importance of a balanced diet cannot be overstated. A balanced diet provides natural disease prevention, weight control, and proper sleep without the use of sleeping pills. Balanced diet is also important because it enables to meet daily nutritional needs and enjoy a higher overall quality of life.

With nutritional issues in the spotlight, it seems a good time to evaluate how orthodontic treatment affects a patient's diet.

Orthodontic treatment creates physical, physiologic, and emotional stresses that increase the nutrient mobilization and utilization, thus raising the nutritional requirements of the person. This along with the fact that the nutritional needs of adolescents (the age of a typical orthodontic patient) is already stressed by growth and development as well as the emotional stress of puberty, maintenance of a well balanced diet is of great importance. Fixed orthodontic treatment typically lasts for around 1½ to 3 yrs and during this duration certain dietary restrictions and modifications are advised.

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**Discussion:**

In recent years, people have become more aware and concerned about maintaining good health and having a healthy lifestyle. A good diet plays an important role in maintaining good health. Even the government of different countries have been working to formalize national nutrition monitoring system and there are new labeling laws for foods regarding fat and salt content<sup>[1,2]</sup>. With so much focus on healthier foods and more nutritional food choices, dietary counseling and nutritional education relevant to oral health have become an important component of dental education. In fact, 1987 guidelines for accreditation of dental schools by ADA requires that “the graduate must be competent to provide dietary counseling and nutritional education relevant to oral health<sup>[3]</sup>. Study of diet and nutrition is also a mandatory part of curriculum in Indian dental schools<sup>[4]</sup>”.

Scientifically, food is divided into five major groups, each group provide some but not all the nutrients we need. Each food group is as important as another, no one can replace other. For good health, we need them all. Here we discuss about the groups of food that make up a good diet. We also discussed here that how much we need to eat from each group, which food we should eat more or less.

1. Vegetables
2. Fruit
3. Milk, Yogurt, and Cheese
4. Meat, Poultry, Fish, Dry Beans, Eggs, Nuts, Oilseeds, and Sweets
5. Bread, Cereal, Rice, and Pasta

Food Group	Main Nutrients
Cereals, grains and products (6-7 servings per day), rice wheat flour, maize, rice flakes, puffed rice and maida.	Energy, protein, invisible fat, Vitamin B, B2, folic acid, iron and fibre.
Pulses (one serving per day) legumes, Bengal gram, black gram, green gram, red gram, rajmah, soyabean.	Energy, protein, invisible fats, Vitamin B, B2, folic acid, calcium, iron, fibre.
Milk and meat products (2 servings per day), milk, skimmed milk and cheese.	Protein, fat, Vitamin B2, calcium.
Meat and chicken - liver, fish, eggs, meat (one serving per day).	Protein, fat and Vitamin B2.
Fruits apples, guava, tomato ripe, papaya, orange, sweet lime, water melon.	Fibre, Vitamin C, carotenoids.
Vegetables (green leafy). Amarnath, spinach, coriander leaves, mustard leaves.	Invisible fat carotenoids, Vitamin B2, folic acid, iron and calcium fibre.
Other vegetables: carrot, brinjal, ladyfinger, capsicum, beans, onion, cauliflower.	Carotenoids, folic acid, calcium fibre.
Fat and sugar: Fat - 3(tsp/day) butter, ghee, hydrogenated oils, cooking oils like ground nut, mustard and coconut oil.	Energy, fats and essential fatty acids.
Sugar (2 tablespoon/day) sugar and jaggery.	Energy.

This discussion emphasizes that nutrition is an important factor, influencing the general health and tissue tolerance of orthodontic patients at many levels. While orthodontists will rarely see frank manifestations of nutritional deficiencies, it should be recognized that suboptimal levels of certain nutrients are common and have an effect on the biologic responses of the tissues influenced by orthodontic treatment.

Additionally, the age group typically involved in orthodontic treatment has particularly high nutritional demands and particularly poor dietary behavior.

Foods that cannot be cleaned off the braces, may lead to discoloration and decay of teeth. Even though braces and wires are metal or ceramic, they are fragile and are usually damaged by eating the wrong foods, thus taking longer to finish treatment.

### **Braces friendly eating tips:**

When you abide by the rules of what to eat and what not to eat when wearing braces, you are doing yourself a favor. Your orthodontist gives you dietary guidelines for a reason. When you are wearing braces, it is important to avoid certain foods that can damage the orthodontic appliances, brackets, and wires, which may cause delays in treatment. The key rule is: nothing hard, sticky or chewy! Here's a handy red-yellow-green light list of do's and don'ts when it comes to snacking while wearing braces. You can also check out our complete list of orthodontic dietary guidelines and more.



### **Red light (Never Eat!):**

Nuts, Popcorn, Chewing Gum, Hard Pretzels, Pizza Crust, Croutons, Gummy Bears, Caramels, Jelly Beans, Licorice, Jujubes, Chocolate Chips, Ice cubes, Skittles, Starburst, Smarties, M&Ms, Tootsie Rolls, Pens and Pencils



### **Yellow light (Use caution, cut up & chew with back teeth.):**

Nacho Chips, Bagels, Ribs, Chicken Wings, Raw Vegetables, Hard Fruit (i.e. apples, unless sliced thin or cut in small pieces), Fruit with Pits (i.e. peaches), Corn on the Cob, Crusty Bread, Granola Bars, Foods high in sugar (e.g. pop, candy): don't eat often and brush soon after.



### **Green light (Go for it!):**

Ice Cream (no nuts), Potato Chips, Steamed Vegetables, Pasta Potatoes, French Fries, Soft Pretzels, Yogurt, Pudding, Jelly, Soup, Sub Sandwiches, Cereal in Milk, Cheese, Eggs, Milkshakes, Caramel Bars, Peanut Butter Cups.

### Conclusion:

To optimize patient's physiologic response to orthodontic treatment, it may be beneficial to provide dietary guidance to orthodontic patients in choosing soft food diets. This includes obtaining nutrition history, evaluating the diet, educating the patient about diet components important for oral health, motivating the patient to improve diet and follow up to support patient's effort to change food behaviors.

Patient with braces who prefer or switch over to convenience foods such as cakes, pastries, ice creams and cookies, which are high in simple sugars and fats, should be advised regarding the value of fruits, vegetables, grains, and cereals in their regular diet. Nutrition goals for the orthodontic patient should be to eat a variety of foods including protein sources, dairy food, fruits, vegetables, and cereals and to limit salt, fat and sugar intake.

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