

## **Fruit Drinks: How Healthy and Safe?**

Fruit drinks are popularly used in most urban households. Historically, the use of fruit juices began with consumption of orange juice, as a source of vitamin C to prevent scurvy. However, today markets are flooded with a large variety of juices *e.g.*, mango, apple, guava, litchi, grape, pineapple, etc. The main reason for increased consumption is changing lifestyles and rising level of health consciousness among consumers and parents. They believe that these drinks provide superior nutrition because of their fortified status and high beverage cost. Child preference, easy availability, convenience, naturalness and marketing strategies have given fruit drink industry a booming growth. Recent pesticide issue of soft drinks has further augmented sales of fruit drinks.

### **DEFINITIONS: FRUIT JUICE, FRUIT DRINK AND NECTAR**

American Academy of Pediatrics (AAP) defines fruit juice as either natural or 100% concentrate without added sweeteners. Anything less than 100% concentrate is labeled as drink, beverage, or cocktail(1). Fruit drinks are defined as calorically sweetened beverages with a small percentage of fruit juice or juice flavoring containing carbonated water(2). Fruit drinks have less than 20% concentrate and nectars have around 20 to 99% concentrate. Sometimes, fortifiers such as vitamin C or calcium are also added to the fruit drinks.

Fruits and 100% juices contain water, simple carbohydrates (sucrose, fructose, glucose, sorbitol), high amount of vitamins (C, A) and minerals (potassium, calcium *etc.*)(1). However fruit drinks, even 100% juice is not equivalent to whole fruits. Fruits supply fibers and phytochemicals to diet, which are not present in juices. Fruit juice devoids the child of opportunities to learn skills like peeling, chewing, and differentiating between colors, textures and shapes. Fruit drinks, thought to be

complete source of energy, vitamins and minerals are actually a mere sweet drinks and poor source of nutrition. Whole fruits are less calorogenic as compared to fruit juices and fruit drinks.

### **THE BUSINESS BOOM IN FRUIT DRINK MARKET**

The mean juice consumption in US is as high as 2 billion gal/y, with an average 9.2 gal/y/person with children consuming the maximum (28%)(3,4). The fruit juice consumption in pre-school children increased from 3.2 to 5.5 fl/oz/day(5). By one year of age, 90% children in US are consuming fruit juices(1). Even in India, in-home juice consumption has increased from 30 to 80% in last 3 years(6). The Indian fruit drink market is estimated to be 1200 crores(7). The commonly available brands in Indian market are from Dabur (Coolers and Real), Pepsi (Tropicana, Tropics, Slice), Coca Cola (Maaza), Mother Dairy (Safal) and Godrej (Xs range). These are marketed in different flavors: orange, mango, pineapple, lichi, apple, grape *etc* and include fruit juices, fruit drinks and nectars. The fruit drink market is growing further at the rate of 20-25%. The major share (60%) is contributed by fruit drinks while fruit juices account for only 30% and nectars for the remaining 10% market(6). The growing popularity and unrestricted consumption of fruit drinks especially in children is a serious concern.

### **RECOMMENDED DAILY ALLOWANCE (RDA)**

Fruits are one of the 5 major food groups in food pyramid. American Academy of Pediatrics (AAP) recommends that those who require 1600 Kilocalories (1-4 years of age) require 2 fruit servings and those who require 2800 Kilocalories (10-18 years of age) require 4 fruit servings(1). In them 50% can be provided as fruit juice (not fruit drink) with each serving of 6 oz. No juices are recommended for infants less than 6 months of age. The committee advocates and encourages use of fruits as compared to juices to meet the daily requirements and energy balance. However, fruit intake in diet is found to be low. In American

### **Key Messages: Tips For Parental Education on Fruit Juice**

- Encourage children to eat whole fruits.
- Juices should not constitute more than 50% of the daily recommended intake of fruits.
- Do not feed fruit juices to infants below 6 months.
- Fruit juices or drinks should not replace milk in the diet.
- Consume only 100% fruit juice and that too in appropriate amount.
- Fruit juices can be a healthy sources of minerals and vitamins if given judiciously but may have adverse effects if consumed excessively.

children, only 80% of the RDA is met for fruits and that too 54% from fruit juices. The pattern of juice consumption in one study was as follows: mixed (39%), apple (30%), orange (23%), grape (7%), and pear (1%)(8). Corresponding data are not available for Indian children.

#### **POTENTIAL HAZARDS OF FRUIT DRINKS**

Children have preference for fruit drinks as they taste good, packaging has an eye appeal, are inexpensive and convenient and hence are replacing important food items in diet. Mothers use them very commonly in diet. A survey of infant feeding in Asian families in England showed that at 5 months of age, 75% of Pakistani and White mothers, 63% of Indian mothers and 61% of Bangladeshi mothers were giving fruit juices as source of non milk drink(9).

By displacing milk in diet the number of children meeting RDA for calcium has drastically reduced to just 50% and thus a great health concern. The calcium in these juices is not biologically equivalent to milk calcium. The iron in the marketed juices is also absorbed variably. High vitamin C in them promotes iron absorption but polyphenolic compounds in certain juices inhibit iron absorption. Fruit drinks are thought to be good source of minerals and hence inappropriately used in diarrhea when it is known that they are not balanced fluids in this condition and even aggravate diarrhea or rather cause toddlers' diarrhea(5). Fruit drinks are common cause of tooth decay and promote picky feeding(10). Unpasteurized juices can be a source of serious bacterial infections. Change in bowel habits *i.e.*, abdominal distension, flatulence and diarrhea are frequently observed with fruit drinks(11). This is because of carbohydrate malabsorption as these

juices have high quantity of sorbitol which is nonabsorbable and high fructose-glucose ratios. A health care professional should be consulted before recommending fruit juice in diarrhea, dental caries, and malnutrition. Few studies have shown that intake of fruit juices in huge quantity is associated with short stature, obesity, diabetes mellitus and malnutrition(8). However, Skinner, *et al.*(12) recently showed that in a sample of young children there was no association between short stature and obesity and high fruit juice intake.

#### **APPROPRIATE CONSUMPTION OF FRUIT DRINKS**

Fruit drinks, if consumed in appropriate quantity, can be a part of balanced diet for children, and are not always harmful. Studies have shown that vitamin C and flavinoids in juices have beneficial long term health effects like decreasing the risk of cancer and heart disease(13). Vitamin C by increasing iron absorption to almost double can reduce the incidence of anemia in population consuming diet with low iron content and bioavailability(14). However, the awareness and education of these details is lacking among general population.

#### **ROLE OF IAP AND CONSUMERS**

With markets overflowing with wide variety of fruit drinks and consumers half aware of the benefits and adverse effects, it is a serious issue to be addressed. Also, no clear system or guidelines regarding nutritive and energy density, health preferences and risk related with fruit drinks exists in India. Unlike AAP, the Indian Academy of Pediatrics (IAP) has not formulated any guidelines regarding fruit juice consumption in children. It needs to set up a Task force to look into these issues and formulate new, or

adopt, or adapt the existing AAP guidelines. Drinks do not label the exact concentration and this may misguide consumers. There are no guidelines printed on labels regarding the safe intake for different age groups. Pasteurization details are not clearly mentioned. Thus guidelines for manufacturers need to be made. Parents should be made aware of these minute details and to read the label to identify the exact nature of the constituents of the fruit drink to know what they are offering to their child.

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