



Promotion of Children Health with Giving Supplement of Rainbow Nutrition: A Review

Sagar Alwadkar^{1*}, Pratibha Wankhede¹ and Mayur Wanjari¹

¹*Department of Community Health Nursing, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences, Sawangi (M) Wardha, Maharashtra, India.*

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Review Article

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ABSTRACT

Introduction: "Eat the Rainbow" is an educational approach intended to encourage children to incorporate fruits and vegetables in their daily diet so that they can receive all the foods they need for their health. According to UNICEF, school children are the future generation of tomorrow, the age group from 6 to 12 years is considered the school-age children. They grow steadily but gradually and generally eat four to five times a day, which include snacks. Maintaining their health, development, and growth during this age group is extremely important. These age groups of children face rapid mental and physical development and therefore proper nutrition is very crucial at this point in life. In children, the eating habits developed at birth usually persist into adulthood. Eating habits are influenced by food choices. During this time many dietary habits, likes, and dislikes are established. Parents, friends and especially television media affect their food choices and eating habits.

Keywords: Rainbow nutrition; food habits; UNICEF.

1. INTRODUCTION

For kids' nutrition is very essential. It is mentally and physically developed towards the child.

America's nutritional guidelines say food and vegetables have led to good health. It has a reduction and prevention of chronic disease. It should be inclusive of different colors of fruits

*Corresponding author: E-mail: wanjari605@gmail.com;

and vegetables every day. "Eating the Rainbow intervention programmed" is all about eating a lot of many different colors of fruits and vegetables each day, that also offer the body different nutrients.

The in-home mother is the one who cares about the kids, which is why she should need to learn about the rainbow diet so well. Good diet and physical activity are important to children's growth and development, helping them develop healthier eating habits from a young age [1].

What is a rainbow diet?

The basis for the diet is the knowledge that each food color represents a certain type of antioxidant – for example, red-colored foods are usually high in antioxidants that protect both short-term and long-term memory and help to prevent cancer and heart disease from occurring at times. You will ensure you get a wide variety of nutritious and beneficial nutrients by eating a rainbow every day without having to think about sticking to strict diet plans.

The Rainbow Diet works because it's simple, asking us to eat low-calorie, high-nutrient foods and not banning any particular type of food. You will have to eat a rainbow each day which includes the following foods/color [2].

1.1 Benefits of Rainbow Nutrition

- Research has shown a variety of these nutrients can work together to: strengthen your immune system.
- Minimize your risk of certain cancers.
- Reduce Help guard against type 2 diabetes.
- Reduce hypertension.
- Prevent certain eye diseases.
- Maintain urinary tract health.
- Keep a healthy heart.
- Improve memory.
- Help to form strong teeth and bones.

1.1.1 Why the rainbow-colored fruits and vegetables are so important

Eating different colored fruits and vegetables in a rainbow is an extremely safe way to eat. It's not another tricky diet like eating just white food or grapefruit. Our body requires a range of vitamins, minerals and phytochemicals to remain healthy and nature has written these in color for us.

1.2 Benefits of Color

1.2.1 Red

Foods that are red help reduce cancer risk, boost your immune system and enhance brain and heart health. This is because they contain compounds like anthocyanidins and lycopene.

Try incorporating foods like apples, beets, red bell peppers, cranberries, cherries, grapes, plums, pomegranates, raspberries, strawberries, and tomatoes. I highly recommend spicing up your next pasta dish with a bunch of chopped veggies and a tomato-packed marinara sauce. An easy summer dish to try is these zoodles with fresh cherry tomatoes and bell peppers.

1.2.2 Orange

Foods that are orange help boost your immune system and optimize eye and skin health. This is because they contain compounds like beta-carotene and curcuminoids.

Try incorporating foods like apricots, orange bell peppers, carrots, mangos, oranges, pumpkin, sweet potato, and turmeric. I like to keep dried apricots in my bag for a quick snack when I'm on the go. I also love this refreshing chia Fresca with pineapple and turmeric.

1.2.3 Yellow

Yellow foods are anti-inflammatory and promote eye, skin, brain and heart health. This is because they contain compounds like lutein and zeaxanthin.

Try incorporating foods like golden apples, pears, bananas, yellow bell peppers, lemons, pineapple, and summer squash. I love chopping up bell peppers to dip into hummus or guacamole when I want a quick snack. Whipping up this lemony vinaigrette for salads is super easy to do, too.

1.2.4 Green

Green foods are anti-inflammatory, support your liver, and are vital for brain and heart health. This is because they contain compounds like chlorophyll and isoflavones.

Try incorporating foods like asparagus, avocados, green bell peppers, broccoli, Brussels sprouts, cucumbers, edamame, leafy greens, limes, and zucchini. This is my favorite color to

eat because salad is a way of life for me and I'm able to incorporate so many different green foods into one bowl. Here's how to create the perfect salad bowl.

A fruit-packed smoothie that's full of greens is an easy go-to, too. Pro tip: Add a handful of spinach and a 1/4 of an avocado to your next fruit smoothie. I promise you won't taste the spinach and the avocado will add a lovely creaminess.

1.2.5 Blue and Purple

Foods that are blue and purple are anti-inflammatory, anti-cancer, and are good for the brain! This is because they contain compounds like anthocyanidins and resveratrol.

Try incorporating foods like blueberries, blackberries, cabbage, purple cauliflower, eggplant, grapes, plums, and prunes. I always have a bag of Wild Blueberries in the freezer and I've made everything from crumb cake to energy balls using them. You can also freeze grapes – I know, it sounds a little weird, but trust me – it's a delicious and refreshing snack on a warm summer day.

1.2.6 White and Brown

When it comes to phytonutrients, the rule of thumb is the darker the plant food = the more nutrient-dense. But white and tan plant foods are the exception! These plants are pretty amazing as anti-inflammatories, plus they support a healthy liver and optimize hormone health. This is because they contain compounds like allicin and tannins.

Try incorporating foods like apples, cauliflower, coconut, dates, garlic, ginger, chickpeas, peanuts, mushrooms, onions, flax seeds, hemp seeds, sunflower seeds, tahini, and whole grains. Sneaking a spoonful of tahini into your favorite creamy soup recipe is a great way to add a great depth of flavor, an irresistible texture, and a ton of nutrients to your meal.

2. TIPS TO INCREASE FRUITS VEGETABLES IN YOUR DIET

Eat some food groups every day from all of the food classes. Test the approaches that you are going to try: [4]

- Put fruit and vegetables hygienic in the fridge — ready to cook.
- Have low-fat vegetables dipped for a snack?
- Use pre-packaged commercial salads and stir-fry mixes to save time in the prep.
- Apply vegetables to soups, stews and casseroles.
- Drink 100 percent fruit juice instead of soda pop or fruit-flavored drinks.
- Hold on the table a bowl of apples, bananas, or oranges.
- Choose a side salad with a wide variety of leafy greens
- Add sandwiches of lettuce, onions, peppers or tomato.
- Order your pizza with veggie toppings
- Enjoy smoothies with fruit for breakfast or snacks
- Packing fresh or dried fruits for fast snacks

Table 1. The rainbow nutrition

Colors	Fruits and Vegetables	Colorful protective substance and possible Action
Red	Tomatoes, Watermelon, Guava	Lycopene: antioxidant; cuts prostate cancer risk
Orange	Carrots, sweet potatoes, mangos, pumpkins	Beta-carotene: supports immune system; powerful antioxidant
Yellow-Orange	Oranges, lemons, grapefruits, papayas, peaches	Vitamin C, flavonoids: inhibit tumor cell growth, detoxify harmful substances
Green	Spinach, kale, collards, and other greens	Folate: builds healthy cells and genetic material
Green-White	Broccoli, Brussels sprouts, cabbage, cauliflower	Indoles, lutein: eliminate excess estrogen and carcinogens
White-Green	Garlic, onions, chives, asparagus	Allyl sulfides: destroy cancer cells, reduce cell division, support immune systems
Blue	Blueberries, purple grapes, plums	Anthocyanins: destroy free radicals
Red-purple	Grapes, berries, plums	Resveratrol: may suppress estrogen activity
Brown	Whole grains, legumes	Fiber: removes carcinogens

3. FRUITS AND VEGETABLE SAFETY

Improperly treated fruits and vegetables can become infected with salmonella and E. coli, contributing potentially to food-borne diseases. It is advisable to wash fresh fruits and vegetables well with plenty of running water for health. Avoid cross-contamination, too. Follow these tips to keep products from store to house safe.[5].

1. Check fresh fruits and vegetables before purchasing for signs of freshness.
2. Pack fresh food in the grocery cart and separate bags away from meat.
3. Wash the hands for 20 seconds with warm water and soap before preparing fruits and vegetables.
4. Wash with running water on all fresh produce, using a brush if necessary. Never using soap.
5. Remove outer lettuce and cabbage leaves.
6. Separate cutting boards used to cut fresh produce and meat.
7. Wash the cutting boards with water and soap. Sanitize 1 tsp with water. Bleach by one-quarter of water.
8. Serve fresh cut-up products on ice in containers.
9. Store the cut-up fruit at 40 degrees or below.

4. HOW TO GET CHILDREN TO EAT A RAINBOW OF FRUIT AND VEGETABLES

Children and adolescents are even less likely to be eating enough vegetables than adults. Less than 1 percent of children aged 2-3 eat the recommended 2.5 serves of vegetables and legumes a day. Among the ages of four and eight, 0 percent of children reach their recommended goal of 4.5 servings of vegetables. Most kids up to 13 eat two or fewer servings a day while the target is closer to five.

The intake of fruit is more positive, with nearly four out of five (78 percent) two to three-year-olds eating the recommended one serving. But that declines as children grow older, with 59% of four-to-eight-year-olds eating the required 1.5 serves, and 39% of nine-to-13-year-olds getting two serves, which is the recommended minimum consumption of fruit for the age of nine and over.

To establish healthy habits later in life, children need to be familiar with the taste of fruit and vegetables from a young age. The fruit is usually

simpler because humans have an inherent taste for sugar. While some vegetables are sweeter, many parents still struggle.[6].

5. TIPS TO BOOST FRUITS AND VEGETABLES IN DIET

- Maintain it colorful. Challenge yourself to try different-color fruits and vegetables. Make it a red/green/orange day (apple, lettuce, carrot), or see if a rainbow of fruit and vegetables can be consumed during the week.
- Add that too. Apply vegetables and fruits to the foods you eat. Start putting frozen Tomac 'n' cheese peas, carrots on top of pizza and slices of fruit on top of breakfast cereals or low-fat ice cream.
- Mix up. Attach fruit and vegetables to fried or baked food, or mix with pasta sauces, lasagne, casseroles, soups, and omelets. Another good way to make fruits and vegetables a part of every meal is to blend fresh or frozen berries with biscuits, waffles or muffins.
- Roast off. Try to roast vegetables such as cauliflower, broccoli, sprouts in Brussels, onions, carrots, tomatoes or eggplants long exposure to high heat can induce caramelization of these foods, which will improve their natural sweetness and decrease bitterness.
- Enjoy dipping on vegetables. Chop the raw vegetables into bits of bite-size. Try bell peppers, tomatoes, cucumbers, broccoli, cauliflower, and celery, and dip your preferences into dressings that are low-fat or free of sugar.
- Sip some smoothies. Smoothies are a perfect way to make it easy to raise the amount of fruit you consume. A quick smoothie is only frozen bananas, some low-fat or non-fat milk and/or cream, and 100 percent juice of bananas, all combined in a blender until smooth. Experiment with various fruits to find out what you like. Note that certain cholesterol-lowering medicines that interact with grapefruit, grapefruit juice, pomegranate, and granite juice.
- Try pops on fruits. In an ice tray, put 100 percent fruit juice, and freeze overnight. As mini popsicles, you should eat the cubes of fruit, or place them in other juices. Seedless frozen grapes produce delicious mini popsicles and they're a perfect summer treat.

- Enjoy desserts made of berries. Fresh or canned fruit in light syrup or natural fruit juice, fruit-bearing gelatin and dried fruit are fine dessert options. [7-8]

6. CONCLUSION

In children, the eating habits developed at birth usually persist into adulthood. Eating habits are influenced by food choices. During this time many dietary habits, likes, and dislikes are established. Parents, friends and especially television media affect their food choices and eating habits.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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