

# Say bye to soda, say bye to tooth decay

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**Abstract:** The egg is rich source of nutrient. Whereas the beverages like coca cola, mirinda that contains soda are harmful for human body. These beverages have high content of caffeine and phosphorus with fructose which causes harm to human body. Caffeine can affect the level of dopamine which can make one feel as though they have more energy. It works as energy booster. Evidence about the acid contents of Cola-beverages and its effects on teeth is rare. Let us assume the egg as teeth. If we placed the egg for 24 hours in a container containing the coca cola or mirinda the egg becomes hard and absorbs the colour of respective beverage. The cola beverages are bit vulnerable since the enamel is point to abrasion from the acidic softening of the enamel. When one drink soda beverage, the sugar it contains interact with bacteria in mouth to form acid. Acids and preservatives in soda can also play a part in eroding tooth enamel, even if you drink diet sodas. Both sugar free and regular sodas contain their own acids. With each swig of soda one gets reacted with bacteria for 20 minutes. The two main effects of soda are erosion and cavities.

The egg dipped in cola and mirinda becomes a model to explain the erosion of teeth and attack of cavities.

**Keywords:** *Caffeine, Dopamine, enamel, abrasion.*

**Ingredients included:** Eggs, coca-cola and mirinda.

## **Introduction**

The egg consists of three main components that is egg shell, egg white and the yolk.

**1) EGGSHELL:** The eggshell is an important structure of the egg. It forms embryonic chamber for the developing chick in the egg and also provides mechanical protection and also creates controlled gas exchange medium in egg. The eggshell consists of 97% of calcium carbonate. This chemical is provided to the hen in diet and must be broken down in the digestive system. Then this chemical is resynthesized in the shell gland to form the shell again.

**2) EGG WHITE:** Egg white is the clear liquid contained in the egg. Its main aim is to protect the yolk in the egg. It consists of 90% of water including 10% of proteins. Egg white contains no fat and carbohydrate content is less than 1%. It contains almost 56% of the protein in the egg. It is also called as Albumen. It makes up around two third weight of the chicken egg. It does not contain cholesterol.

**3) EGG YOLK:** Yolk is the nutrient bearing portion of the egg. Its aim is to provide food supply for the growth of embryo. When there is sufficient supply of food to hen its egg contains no yolk such egg is called as 'dwarf egg'. As the egg contains no yolk it does not hatch chick. The color of the yolk is dependent on the food supply to the hen.

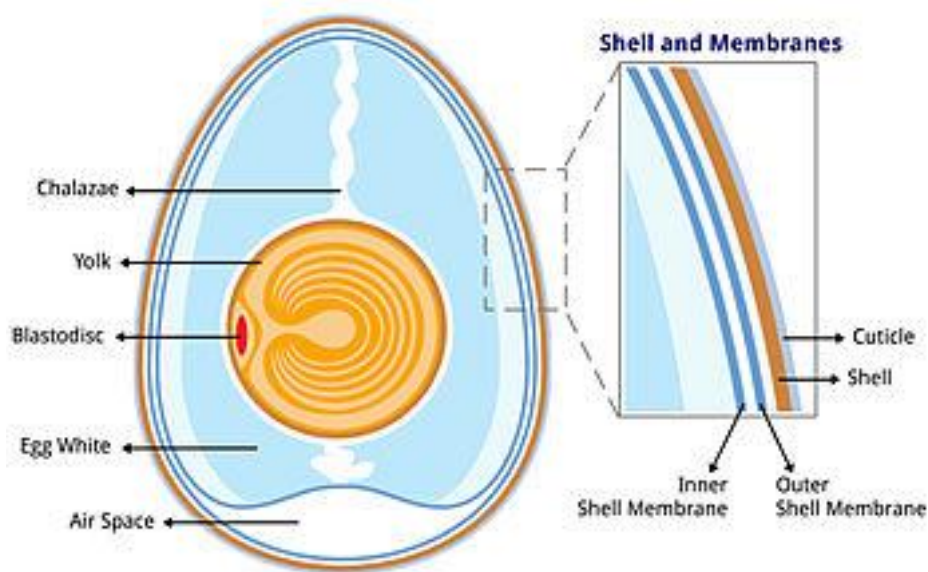


Fig (1)

## Coca Cola

### Beal recipe of Coca Cola:-

Fluid extract of Coca: 3 drams USP.

Citric acid: 3 oz.

Caffeine: 1 oz.

Sugar: 30 lbs.

Water: 2.5 gal.

Lime juice: 2 pints (1 quart)

Vanilla: 1 oz.

Caramel: 1.5 oz or more for colour.

The original formula of Coca Cola is a closely-guarded trade secret. When the egg is placed in the Coca Cola a reaction takes place which makes the egg hard in 24 hrs and the egg gets the colour of the coca cola.

Considering the egg as teeth we can study the tooth erosion process after consumption of the Coca Cola. Coca Cola is a very common drink all around the world. About 10,000 coca cola brands are consumed per second. Coca Cola is full of Phosphoric acid. This makes it more acidic than lemon juice and also Vinegar.

The Coca Cola contains citric acid, caffeine, caramel colouring, and granulated white sugar, which dwells the calcium in the body. The erosive potential of cola is 10 times that of the fruit juices in just three minutes of drinking.

The egg when removed from the coca cola solution after 24 hours its becomes physically hard and absorbs the colour brown of coca cola.



Fig (2)



Fig (3)



Fig (4)

**Beal Recipe of Mirinda :**

Carbonated Water

High Fructose Corn Syrup

Caramel Colour

Sugar

Phosphoric Acid

Caffeine

Otric Acid

Natural Flavour

Potassium

Phosphorus

Just as the egg placed in cola instead if placed in Mirinda then the reaction of the ingredients of mirinda just like carbonated water, high fructose corn syrup and/or sugar, citric acid, purity gum, potassium benzoate and potassium sorbate (preserves freshness), ester gum, natural flavour, yellow 6, ascorbic acid and calcium disodium EDTA (to protect flavour), sodium citrate react with the egg which dwells the calcium in the egg.

The egg when removed from the mirinda solution after 24 hours its becomes physically hard and absorbs the colour orange of mirinda.



Fig (5)

Fig (6)



Fig (7)

**Effect on teeth by soda:**

Enamel hardens the outside of teeth, protecting the dentin and pulp of the tooth from damage. Like any surface, enamel can wear down over time. Saliva performs essential functions in keeping tooth enamel strong. Calcium and phosphate particles in saliva help strengthen tooth enamel. Saliva also washes away

the acidic plaque that forms on tooth enamel and eats away at it. Soda contains acids such as phosphate and citric acid that weaken the tooth enamel.

### **How to prevent damage**

Stop drinking soda. But many just can't seem to kick the habit. There are things one can do to lessen the risk of damaging teeth.

- **Drink in moderation:** Don't have more than one soft drink each day. Just one will do enough damage.
- **Drink quickly:** The longer it takes to drink a soft drink, the more time it has to wreak havoc on dental health. The faster one drinks, the less time the sugars and acids have to damage teeth.
- **Use a straw:** This will help keep the damaging acids and sugars away from teeth.
- **Rinse mouth with water afterward:** Rinsing mouth with some water after drinking soda will help wash away any remaining sugars and acids, and stop them from attacking teeth.
- **Wait before you brush:** Brushing immediately after having a soda isn't a good idea. That's because the friction against the vulnerable and recently acid-attacked teeth can do more harm than good. Instead, wait for 30-60 minutes.
- **Avoid soft drinks before bedtime:** The sugar and acid will have all night to attack teeth.
- **Get regular dental cleanings:** Regular checkups and exams will identify problems before they worsen.

### **Conclusion**

#### **There are alternatives to soda**

By choosing soft drinks that have a lower acid content can protect from erosion of teeth. Coca-Cola and mirinda are two of the most acidic soft drinks on the market.

Sprite and Diet Coke are some of the least acidic soft drinks (but they are still quite acidic).

Soft drinks aren't a healthy choice, but they're a popular one. If you have to drink soda, do it in moderation and protect your dental health in the process

Soft drinks have many potential health problems, including dental caries and enamel erosion. In conclusion, excessive intake of soft drinks could cause complex dental consequences including dental

erosion and caries. It is necessary to educate all soda consumers about the harmful effects of excessive soft drink consumption and to advise them with the following tips to prevent dental erosion and caries: limiting soft drinks intake, choosing the low erosive soft drinks, improving the drinking habit, tooth-brushing at least twice a day, avoiding brushing tooth within 1 h after consuming acidic food, and using fluoride or re-mineralizing toothpaste.

### **Experimental Setup:**

Fig (1): It tells about the basic diagram of the egg, the layers of the egg and the basic components of the egg.

Fig (2): The egg when placed just in coca cola solution. Little bubbles are found around the egg this is due to the soda content in the egg.

Fig (3): The egg when completes 12 hours in the cola beverage.

Fig (4): The egg when removed from the cola beverage after 24 hours. Physical change that is observed in the egg is that it becomes hard and the colour of the cola is absorbed due to osmosis.

Fig (5): The egg when placed just in mirinda beverage.

Fig (6): The egg when completes 12 hours in the mirinda beverage.

Fig (7): The egg when completes 24 hours in the mirinda beverage.

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