

Cruise down the aisles of various grocery/supplement stores and notice the variety of colors of the numerous products shelved under “sports/energy/power” drinks. Select from the rainbow of colors to match your mood: purple, pink, blue, rose, red, yellow, chartreuse, orange, or green. Pick up a bottle and check the list of ingredients. Substances such as sodium chloride, citric acid, phosphates, several sugars (sucrose, fructose, glucose), vitamins and minerals, maybe a protein, and natural or artificial colors. The primary purpose of the colors is to make the drinks more appealing to the buyer.

Using Gatorade as an example to illustrate the host of ingredients in a typical sports drink, the following identifies and highlights the typical ingredients:

- Sodium: potassium chloride improves taste by regulating body’s fluid balance.
- Sucralose: alternative to sugar (not easily broken down, excreted through urine)
- Citric acid: natural acid from lemons and limes and is preservative; gives tangy/tart taste (part II to cover effect of acid on teeth).
- Filtered water
- Natural flavors, not from fruit juice or spices, but improve taste of drink.
- Sodium citrate: food additive with salty and citric taste and used to enhance flavors.
- Sucrose syrup: made from liquefied table sugar or sweeteners. High in empty calories. 8 oz. Gatorade has 14 g of sugar (= to 3.3 tsp of table sugar).
- Artificial colors: check the dye color and note which FD&C is included.
- Brominated vegetable oil: obtained from soybean and purpose is to hinder rise of oils in drink from rising to surface; also stabilizes the flavors.
- High Fructose Corn syrup: source for glucose, sucrose and fructose in sports drinks.
- Monopotassium Phosphate: added as a phosphate.
- Glycerol ester of wood rosin: harvested from pine stumps; used to float oils in products containing citric acid oils.

Note: A 12 oz. serving of **Gatorade’s Thirst Quencher** contains 21 grams of sugar. A regular bottle of Gatorade contains 32 oz., which actually translates to 56 grams of sugar.

Colors and dyes. The primary purpose of color (dye) is to make the drinks more appealing to the buyer. Most are artificial and they do have FDA approval. Artificial colors contain various chemicals and are commonly derived from petroleum products. Conveniently, they are available in various forms, including liquids, powders, gels, and pastes. In the U.S., all food and drink labels must list the artificial colors they contain. Labeling FD& C means the dye is safe for use in foods, drugs, and cosmetics. The seven artificial colors approved for use in food are FD&C Blue No. 1 Brilliant Blue, FD&C Blue No. 2 Indigotine, FD&C Green No. 3 Fast Green, FD&C Red No. 40 Allura Red, FD&C Red No. 3 Erythrosine, FD&C Yellow No. 5 Tartrazine, and FD&C Yellow No. 6 Sunset Yellow.

Safety Concerns of artificial colors: Although artificial colors have been linked to allergic reactions and other health concerns, including behavioral changes in children, the FDA continues to allow them to be used in food. One of the most problematic dyes is Yellow #5, E102, tartrazine, used to color soft drinks and energy drink. Tartrazine has already been banned in Norway, Austria and Finland.

Natural Food Colors, exempt from certification, are derived from natural sources (e.g., Annatto - a reddish-orange dye made from a South American shrub, Paprika, Saffron, Lycopene from tomatoes, Beta-carotene, and Carmine, derived from the cochineal insect).

Part II of Sports drinks will focus on effectiveness and risks/benefits, including the effects of acids on teeth and stomach.

Resources: <http://www.health.harvard.edu/blog/trade-sports-drinks-for-water-201207305079>; FDA and NIH sites. <http://sciencenetlinks.com/science-news/science-updates/sports-drinks/> <http://www.healthline.com/health/food-nutrition/is-gatorade-bad-for-you>