The Unseen Dangers of Sports and Energy Drinks

The dangers of sports drinks consumed by amateur athletes (Part I) and education for consumers on when and why to drink them (Part II).

Tag Words: sports drinks; energy drinks; Caffeine; Carbohydrates; Water; Electrolytes; Hydration; Dehydration;

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Summary (LB)

This project is intended to raise awareness about the dangers of using sports drinks and sport supplements. Gatorade is a very popular brand of drinks and supplements associated with athletes, yet these products can be very dangerous if not used properly. Gatorade is a product of PepsiCo and while investigating the ingredients and affects of this sports drink it seems almost no better than a soda. This project will discuss the dangerous effects on the body that can occur from consuming a lot of Gatorade, the marketing of the brand, the ethics of how it is sold and some healthier alternatives.

Video link

Energy Drinks: http://www.youtube.com/watch?v=syudqSSBtBI

The Issue: Sports/Energy Drinks

The ingredients of Gatorade

The Gatorade G series perform drink contains: water, sucrose, dextrose, citric acid, natural and artificial flavors, salt sodium citrate, mono potassium phosphate, gum Arabic, glycerol ester of rosin, sucrose acetate isobutyrate, and yellow 5 .

These ingredients are in order of concentration and as you can see sucrose and dextrose are two of the three main ingredients. Sucrose is simple table sugar and dextrose, also known as glucose, is sugar as well. Dextrose, however is the main ingredient responsible for raising blood sugar in the body. High blood sugar releases insulin and dextrose needs insulin for the body to metabolize it. The rest of the major ingredients such as the sodium and potassium are used as electrolyte replenishment. All of the rest of the ingredients are extra additives for flavoring and color.

The bodily effects of Gatorade

Gatorade is mostly made up of sugar with three of the main ingredients being different types of sugars. This drink, in general is not a good choice for children. With the ever rising number of childhood obesity another source of refined sugar is unnecessary. What's even more troubling is that children are drinking sports drinks on a regular basis as an everyday drink.

Gatorade is also very dangerous for young athletes who drink these before athletic events. Many kids drink large amounts of Gatorade because they don't know the dangers. Drinking an excess amount of Gatorade can raise the blood glucose level which causes the pancreas to release insulin in an attempt to lower this level and control the influx of sugar it just received. This release of insulin lowers the blood glucose level which can cause children to experience dizziness and pass out during their athletic event.

The citric acid added to Gatorade causes another problem. This acid used to flavor the sports drink can break down the enamel on teeth. When a lot of this citric acid is consumed it can erode the enamel which then leaves the teeth exposed to bacteria and possibly decay

In addition to this, Gatorade can also have adverse affects on the kidneys. There is sodium added to these sports drinks that has to pass through the kidneys before they are excreted with the rest of the fluids. When the body has excess sodium that the kidneys must absorb and process, the body expels calcium. This calcium, in turn, leads to kidney stones and damages the kidneys. Drinking excess sports drinks like Gatorade increases the likelihood of this happening.

How many kids drink Gatorade

While interviewing an average little league baseball team made up of ten 13-14 year old boys, I asked them how often they drank Gatorade. These were my results.

- 10/10 drank Gatorade before a game
- 8/10 drank water before a game
- 10/10 drank Gatorade after a game
- 9/10 drank water after a game

As you can see all of the boys drink Gatorade both before and after the game. These results did not surprise me, but I was pleasantly surprised by how many of them consume water as well as their sports drink. This is a very important part of safely consuming sports drinks. If you are

working out intensely and for a prolonged time, like these little leaguers, you might need to drink something like a Gatorade but it is important to remember that you have to also intake more water than sports drink. It Is said that an athlete should drink two bottles of water for every one Gatorade consumed. This process allows the ingredients in sports drinks to be diluted enabling the body to more easily metabolize the high amounts of sugars and salts.

The Gatorade Brand

Gatorade was originally produced for a college football team made up of athletes working at an extremely intense level of physical fitness. This drink was not meant to be consumed regularly without work out. Even when performing physical activities, a supplemental drink such as Gatorade is not needed unless an athlete is doing a highly intense workout, in hot weather, for more than 60-90 minutes. Most normal kids playing sports rarely fit into this group, yet almost every athletic child consumes at least one Gatorade or more during their sporting event. This occurrence is unnecessary and should be corrected with correct knowledge that informed parents and coaches can provide. When kids do work out intensely and need something supplemental a Gatorade is a good choice but should be followed by two bottles of water to help dilute the heavy electrolytes within the sports drinks.

Parents can't be held solely accountable for the drinks their kids are consuming, the branding and marketing of these drinks by the companies are also to blame. Gatorade, owned by PepsiCo, is just like any other company and they are out to make a profit. These companies aren't there to provide health advice and guidelines for the product they produce, they are only out to sell. In fact, the Gatorade website states that their product "is safe for infants and toddlers to drink." While Gatorade might technically be 'safe' for children this young, it is not at all a smart choice to give them especially knowing all the negative effects it has on a body that isn't in need of severe replenishment.

Along the same lines, the Gatorade website also states, " You can drink Gatorade anytime your thirsty. Gatorade is not just for serious athletes, but can benefit all of us who enjoy being physically active." In my opinion Gatorade is being blatantly dishonest in this statement. A normal body does not need to consume an extra 150 calories (on average) of sugar and electrolytes unless it has done an intense workout. We have to remember that Gatorade is not juice! It is a specialized athletic drink for intense sport performance. Parents and children alike need to be educated on the specific, correct usage and the dangers of these drinks to prevent increased childhood obesity, diabetes and kidney damage.

The Ethics behind the branding

As briefly described in the previous section, Gatorade is a part of PepsiCo, a very large company selling many different products. This company is not an organic health conscience company qualified to give reliable nutrition advice to consumers. This is why individuals, especially parents need to make wise choices when choosing beverages for their children. In my opinion, the Gatorade brand is not acting as an ethical company. They are taking a product made for a specific demographic and marketing it to the general public with an emphasis on young athletes. Again, Gatorade is made for intense athletes in need of extreme electrolyte replenishment but PepsiCo has not outlined healthy guidelines for consumption at a young or amateur level. A more ethical approach would be to set guidelines on how to consume this safely and at what age it is appropriate to drink these drinks.

Gatorades line of protein bars and performance drinks

Gatorade has recently come out with a new line of products specified for before, during and after workouts. I have taken a look at the G Series Fit pre workout fuel energy bites to see exactly what is in them. It specifies that these tiny bars are a carb and protein blend for fuel during a workout. Carbs and protein would be a good choice to consume before a workout but the general labeling on the bar does not mention all of the extra ingredients. The good thing about these bites is that they they do contain a significant amount of protein which is great pre workout, but in this case the bad outweigh the good. These little bars are full of preservatives and additives. In addition to that the second ingredient is sucrose; refined sugar. Also, the calories within the bar are unhealthy calories from sugar and fat with the bites containing 8 grams of fat. With all of these unneeded ingredients this is not the best choice for a pre workout snack.

Healthier alternatives

Nowadays there are so many different choices of supplemental items for athletes to consume. All of these items promise improved performance, but we can not forget about the natural unaltered alternatives that are not genetically modified and full of sugar. During a normal workout your body is losing water so the best thing to replenish your body is to consume more water. It is as simple as that. As for food consumption before a workout, complex carbs such as a piece of whole wheat toast smeared with protein packed peanut butter is a perfect snack. After a game or workout, a banana can replace any lost potassium and salted pretzels provide sodium and carbs. It is important for parents to teach their children from a young age that they don't need these special sports drinks and supplements all the time. Plain old water and naturally occurring carbs protein, potassium, and sodium are the better choices.

The Service Project: Education

With this project I really wanted to focus on educating young athletes and their parents. I work with children at a daycare center in a gym which gave me plenty of opportunity to talk to kids and their parents when they are in a workout environment. Educating those people on an everyday basis was just an additive project that I couldn't overlook. My main service project was going down to my local little league and talking to teen athletes about the hazards of the products they consume. I must say for teenage boys they were very responsive to what I had to say and surprisingly pretty educated on the subject already. I relayed my message, and had fun with the kids while also involving the parents, friends and family who where attending the game in our conversation of healthy exercise. Since doing this project I think that I will be continuously educating people of all ages on this topic that I have learned so much about.

The Little League Team I did my service project with.-->

The effects of drinking too much Gatorade

(Dramatization)

Vs.

The effects of drinking water

Letter to the editor

This letter was sent to Sports illustrated

Magazine for Kids through their website sIkids.com by selecting the contact us section and then the Letter to the Editor section.

To whom it may concern,

My name is Larissa Burgdorfer and I am currently completing an Ethics in Science course at Rutgers University. I have completed a project about the dangers of children improperly consuming sports drinks such as Gatorade. Drinks like Gatorade contain high levels of sugar and sodium which have proven to be detrimental to children especially when they consume a large amount of these drinks. Gatorade has the potential to lead to diabetes, kidney damage, tooth enamel erosion and can add to the growing number of overweight children. Gatorade should only be used if an athlete is working out intensely for 60-90 minutes or more. I think it would be beneficial to include a story in your magazine about the proper uses of sports drinks and the

health hazards they can cause if abused. We can reach out to many children and parents and educate them on healthier choices for their future. Thank you for your time.

Sincerely,

Larissa Burgdorfer

PART II

Summary

Sports and energy drinks have become an increasing beverage of choice whether it is for the tasty pleasures, social and recreational events or for energy and rehydration purposes. Without sufficient knowledge on the effects of all the ingredients found in both sports and energy drinks vast of the population choose to consume large amounts especially for the purpose of energy boost and increased alertness on the sports field and at work. There has been several death cases related to overconsumption of energy drinks loaded with caffeine and carbohydrates since its introduction in the US in 1997. Misuse of both energy drinks and sports drinks by most of the people who choose to consume them and especially adolescence and children and the detrimental effects of high doses of caffeine and carbohydrates, has behooved health specialist to educate the public on how and when to use sports and energy drinks as well as the importance of water as a choice of rehydration. The purpose of this project is to educate the public on the contents in sports and energy drinks and promote better consumption habits.

Video link

Less Energy Drinks, More Water: http://www.youtube.com/watch?v=BAKukVCQpV8

The Issue: Part II (SO & AK)

Are sports drinks similar to energy drinks? (SO)
Both sports drinks and energy drinks provide an energy boost but unlike energy drinks, sports drinks do not contain caffeine and have insignificant amount of sugar. The energy in sports drinks is derived from the B-vitamins that help extract energy from the food we eat without the stimulatory effects of caffeine.

Energy Drinks (SO)
Energy drinks that are being consumed more and more in the US had their first origin in China where they were first manufactured for people working long hours. The first brand was introduced to the American population in the year 1997, and from then more and more competing brands have been embraced by a population that is pressed for better performance and endurance. As the slogan goes, “America runs on dunkin” so does America run on energy drinks. In the current market, higher demand for better performance is being met by even more concentrated energy drinks that are parked in smaller containers but give a higher kick for the

buck. These include the newly introduced 5 hour energy drink that is becoming popular in the gym as well as the work place.

Do energy drinks rehydrate the body? (SO)
NO. Energy drinks do the exact opposite. A major ingredient in energy drinks, caffeine, is a stimulant that makes the heart rate increase which in turn increases the blood pressure that result into more loss of water through urine. When combined with sweating during exercise, the dehydration can be severe.

What are some of the ingredients in energy drinks and what are their functions in the body?

Proteins- enhance muscle recovery after vigorous exercise. Most sports and energy drinks contain several B vitamins, vitamin C, calcium and magnesium, all of which are essential to the metabolic activity involved in production of energy from the food we consume.

There are several ingredients in energy some of which are:
Guarana- a plant extract that contains caffeine. Therefore in addition to the caffeine added to energy drinks, guarana increases the total caffeine level in these beverages. Caffeine is absorbed in all body tissues. Due to its structural similarity with adenosine, when consumed in large amounts as those found in some energy drinks, it binds to adenosine receptors thus blocking adenosine action. Some of the effects of caffeine in the body include: increased heart rates, increased motor activity, attentiveness, diuresis and elevated temperature. In addition to this caffeine can increase anxiety disorders and trigger arrhythmias.

Electrolytes- Sodium and Potassium are the two main electrolytes found in sports beverages such as Gatorade. These two elements aid in certain body functions that help keep the body from dehydration. Not only is sodium an electrolyte it is also considered a mineral used in the body as well. Sodium's primary function is to help regulate the amount of water inside and outside the bodies' cells which helps create an electrolyte balance in the body. Almost all of the sodium contained in our bodies resides in the bloodstream (85%). The more sodium our body ingests the more water our bodies will try to hold onto. The adrenal glands are responsible for regulating the amount of sodium in our blood. The glands accomplish this task by secreting a hormone called Aldosterone. The amount of aldosterone released in our body tells our kidneys whether or not we should release some of the sodium our body has mostly through urination and sweat or hold onto it. However, too much sodium in our bodies can lead to severe health problems. These health problems include high blood pressure, heart disease, stroke, and kidney failure. Potassium is also an important electrolyte that has many functions inside the body. The main function of potassium is to help vital body organs function in the body specifically the heart and kidneys. Low potassium levels are a huge problem for athletes and other people who are active. One main cause for the low levels of potassium in our diets is due to the fact that Americans eat too much processed food. Processed food contains very little to no potassium compared to foods such as bananas, avocados, almonds, peanuts, citrus fruits, green vegetables, milk, and potatoes. As people get older their need for more potassium is increased. For young athletes or children who are active it is recommended that they receive anywhere from 3,800 milligrams per day if you are between the ages of 4 and 8, 4,500 milligrams per day for ages 9 to 13 and 4,700 milligrams per day if you are 14 or older. Those who have low potassium levels are more at risk for high blood pressure, heart disease, stroke, arthritis, cancer, digestive disorders, and infertility.

Carbohydrates- sugar molecules and are classified by how many units of sugar are found in each molecule. The main function of carbohydrates is to provide the human body with energy. However, carbs are also used to maintain healthy organ cells as well as nerve cells. Glucose and Fructose are the two main sugars that our bodies use for energy. These are sugar molecules at their most basic level and all sugars must be broken down into either glucose or fructose before being used by the body. There are three other main groups of sugars. The first group is called disaccharides, and they contain two simple sugar units in each molecule. Simple household table sugar is the prime example of a disaccharide. The second groups of sugars is called Oligosaccharides which contain anywhere between 3 and 9 sugar units in their molecular structure. The third and final group of sugars is called polysaccharides. These sugars are the most complex in structure and can contain anywhere from 10 to thousands of sugar units in each molecule. When taken into the body carbohydrates are broken down into simple sugars (glucose and fructose) by digestive enzymes. After the complex sugars are broken down they can then be used by the body for energy and are absorbed into the bloodstream. The brain however, unlike other body systems, cannot use protein or fat as an energy source. Therefore, glucose levels in the blood must always remain above the minimum level in order for the brain to function. The body uses hormones such as insulin to regulate the level of glucose in our blood as it travels throughout our bodies.

<u>How do energy drinks work to increase energy? (SO)</u>
The human body needs energy to keep as alive. This comes from the foods we eat which contain essential nutrients and calories from which energy is extracted from. The source of energy in energy drink is the carbohydrates and caffeine content. As the saying goes, too much of anything is poisonous, most energy drinks contain a large amount of sugar to give the kick desired sometimes called a sugar rush. Too much sugar in the body affects the osmotic pressure in cells and also affects the nervous system. In addition, excessive consumption of sugar can lead to the manifestation of conditions such as diabetes and obesity.

Caffeine in the body acts as a stimulant. It does by blocking adenosine a sleep related hormone thus causing the neurons in the CNS to fire, the pituitary gland to produced adrenaline which causes an increased heart rate and dilation of the pupils. In addition to this caffeine also causes the liver to release glucose into the blood stream. Therefore in addition to the sugar in energy drinks, more sugar is added into the blood stream thus increasing the likelihood of excess sugar and thus higher chance of detrimental effects of high sugar concentration in the blood and body cells. Furthermore, caffeine has also been shown to affect the levels of dopamine, the body's own pleasure hormone. All this effects of caffeine combined with sugar make one feel a high energy boost.

<u>Are energy drinks safe? (SO)</u>
Health experts have generally agreed that energy drinks are safe if taken in moderation. None the less, if taken in large quantities over a long period of time, caffeine can be addictive, can cause irregular heartbeat which in turn leads to poor circulation of blood to the body organs and can culminate to more serious health conditions. Furthermore high sugar concentration can cause damage to nerve and body cell leading to more serious medical and health conditions.
Energy drinks such as powerade with zero calories are geared towards replenish electrolytes lost in sweat during exercise. Unlike other energy drinks, it doesn't contain significant amount of sugar and caffeine.

Apart from being a danger to healthy heart, excessive consumption of energy drinks can damage the liver. The liver is the sewage system in the body; functioning to clean the blood by eliminating toxins. Therefore by consuming too much energy drinks results into the liver working overtime to eliminate the byproducts of metabolism and also elevates liver enzymes.

Sports Drinks (AK)

Many athletes choose to use beverages such as Gatorade and Powerade to replenish their bodies of more than just water. These sports drinks contain other elements that water does not contain that help with rehydration and replenish nutrients in order to continue to participate in physical activity. The only cure for dehydration is fluid replacement whether it is through intravenous fluids or oral rehydration. Oral rehydration is the most common of these two methods although intravenous fluids may be needed for cases of severe dehydration. The most popular and widely used sports drink in the world today, Gatorade, contains many essential nutrients that aid in continuing essential body processes while exercising. Carbohydrates are our bodies' main source of energy. The human body has three main sources of energy called macro-nutrients; carbohydrates, protein, and fat. Our bodies use the carbohydrates that our body stores up first before using protein or fat for an energy source. Carbohydrates are used in sports drinks to aid in the absorption of fluids into our bodies. As per an 8 ounce serving, Gatorade contains 14 grams of carbohydrates. Sports drinks also contain two main other nutrients which are sodium and potassium. These electrolytes are used in the sports drink to help fight of dehydration and maintain a healthy fluid balance in the body. An 8 ounce serving of Gatorade contains 110 milligrams of sodium and 30 milligrams of potassium. Although carbohydrates are sugars Gatorade contains added sugar to flavor the beverage and make it taste better. This added sugar along with the frequent misuse of the product can lead to health problems especially for children.

(AK) Water

Water is the most essential resource for all living things on planet Earth. Human bodies made up of about 70%-75% of water. Water is needed everywhere in our bodies and is essential for our bodies to function properly. The majority of water that is found in our bodies is found inside our cells which are called intracellular space. The remaining water found in the human body can be found in the spaces between our cells which is referred to as extracellular space. Most of the tissues in our bodies are made up of over 50% water including our muscles (75%), blood (80%), bones (22%), and brain (90%). Water is also essential for many basic human body processes. The digestive system requires the use of water in order to absorb nutrients from the food we eat into our blood. The digestive fluid that our stomachs produce during the digestive process called bile is also mostly made up of water. Water plays a key role in freeing our bodies of the waste products it produces. While some waste is released through our skin via our sweat glands and evaporated into the air, most waste is removed through the digestive system. Water is essential for allowing our bodies to release such waste mainly through urine or stool. Mucus membranes that our bodies produce, such as the mucus in your nose, also is produced by water and is used mainly to hydrate and moisten the inner nose as well as prevent bacteria from entering our bodies and making us sick. The more water the human body has in its system the more efficient our bodies become. It is recommended that human beings drink about 8 glasses of water per day which is roughly equivalent to about 40 oz. Water is also responsible for protecting and hydrating our joints by keeping the ligaments and tendons in our bodies moisturized. Since human beings are warm-blooded animals water is also essential in order to maintain and regulate body temperature as well as help metabolize nutrients. Water also has a profound effect on the

largest organ in our entire bodies, our skin. Water is used to moisturize and hydrate our skin and is even responsible for keeping it look youthful and healthy. Well hydrated skin can help prevent some signs of aging such as cracked or dry skin, vein exposure, and wrinkles.

Dehydration (AK)

Dehydration is a major concern for all active people. The more water we lose through exercise via sweat means the less efficient and healthy our bodies become. In order to prevent dehydration our bodies need to replenish the water we lose from exercise and normal body processes. As we breathe the air in our lungs has been humidified and we lose water while simply breathing. Sweating, urination and bowel movements are also ways in which our bodies lose water. Certain health problems can also put major strain on your body's hydration. Vomiting and diarrhea are two major causes of dehydration. Vomiting is especially worrisome if our bodies are not able to replace water by allowing us to drink. Burn victims as well as other inflammatory skin conditions can also cause dehydration by not allowing water to enter or exit the body through our skin cells properly. People who suffer from diabetes are also more at risk to become dehydrated. High sugar levels in a person's blood can cause thirst or frequent urination. How do you know when our bodies are dehydrated? Some main symptoms of dehydration include:

1. Thirst- Perhaps the most obvious and most overlooked aspect of dehydration
2. Hunger- Feeling hunger is also a symptom of dehydration. The main reason we feel hunger is because dehydration starves our body of water which is necessary to help absorb nutrients in our bodies.
3. Fatigue
4. Dry Skin
5. Dark or Yellow Urine- When our bodies have enough water urine is usually clear or maybe pale yellow in color. A strong odor from urine is also a sign that our bodies lack proper hydration.
6. Dry mouth
7. Muscle cramps
8. Decrease in sweating
9. Irregular heartbeat
10. Headache, lightheadedness, or migraines

Sports drink or energy drink, which one should we drink? (AK)

Yes caffeine is addictive if consumed uncontrollable in large quantities for a lengthy period of time, but caffeine can be useful as a stimulant when need arises. In addition to this caffeine can be used to supplement diuretics since it causes a dehydration effect to the body. The health issues such as heart arrhythmias that my result from large intakes of caffeine, is one of the reason why health experts discourage against consumption of large amounts of energy drinks especially for young children with developing heart who could suffer more damage to the heart due to irregular heartbeats.

Energy drinks have a pH in the acidic range (pH 3-4), low enough to promote enamel erosion. Citric acid is added in most sports and energy drinks is highly erosive due to its demineralizing effects on the enamel. Given this effects of low pH, it is recommended by the American Academy of Pediatrics that children and adolescence stay away from sports drinks and especially energy drinks.

For light exercise routines, it is advisable to replenish water loss by drinking water rather than sports or energy drinks. In addition most of the minerals and vitamins found in sports drinks and energy drinks can be found in a daily balanced diet.
Due to the danger of caffeine toxicity, and excessive carbohydrates intake that may lead to diabetes and obesity, children should be discouraged from drinking energy drinks. Spots drinks can be used to supplement minerals and vitamins after vigorous exercise in addition to pure water but in moderation. The recommended healthy eating environment for children and adolescents relevant to sports and energy drinks as per the report titled Nutrition Standards for foods in schools include: (Adopted from The American Academy Of Pediatrics)

1. Limited sugar foods and drinks
2. Restricted carbonated drinks
3. Restricted sports drinks to be used only during prolonged, vigorous sports activities
4. Prohibited energy drinks use
5. Prohibit sales of caffeinated products in schools.

This project is geared to:

1. Educate parents and children on the difference between sports drinks and energy drinks and health risks associated with them
2. Inform children and their parents that energy drinks contain stimulants that pose a risk to health and that they should stay away from them
3. Inform parents the risks of ingestion of ingestion of sports drinks with high carbohydrate content that can lead to obesity, dental erosion and diabetes.
4. Promote water rather than sports and energy drinks
5. Inform parents that sports drinks should be ingested when need be for rapid replenishment of carbohydrates and electrolytes
   (Adopted from The American Academy Of Pediatrics)

The Service Project (AK)

For our service project our goal is to educate children and their parents about sports drinks, energy drinks, and water. Choosing the right beverage to hydrate you during physical activity is very important. However, most parents and children misuse sports drinks and energy drinks and causing more damage to themselves than they realize. In order to clear up misconceptions people may have for sports and energy drinks we have created a pamphlet that shows what is in these types of beverages and the dangers of misusing these drinks. We also recommend that water is the best option for children who complete in regular physical activity. Sports drinks can also be used but their use is discouraged due to the high sugar levels and unnecessary replacement of nutrients such as sodium and potassium that the body will not lose that much of during light exercise. Sports drinks can be used in moderation for a carbohydrate or caloric energy boost in order to sustain performance. Energy drinks contain caffeine and have very high amounts of sugar in them and are not recommended for young athletes. Water is the best option because it will keep the body hydrated and functioning well during exercise without the sugar content of sports or energy drinks. These pamphlets will be handed out to children and their parents at the next NJPGA U.S. Kid's Golf event which generally has children participate in the 10-17 year old age group.
The following emails were also sent to request for a video interview and distribution of pamphlets to kids in a sports camp.

(SO)To: baseball@piscatawayll.org
Message Body
I am a student at Rutgers university New Brunswick. Currently I am taking a course in ethics in science and one of our class projects is to inform parents and children about the use of sports drinks and energy drinks. I am requesting permission to distribute flyers with information on sports drinks and energy drinks in the tournament on Wednesday the 22nd at Piscataway. I will more than obliged to provide you with a flyer for review before I can distribute them to the parents and children at the event

(SO)To: penglish@scarletnights.com
I am a student at Rutgers University taking a course in ethics in science. One of the project we are involved in is educating young children and their parents on the use of sports drinks and energy drinks as well as water as a source of rehydration, extra energy boost and drink of choice. The flyers contain information regarding when to use sports drinks, recommended consumption amounts and information on the major ingredients, that is caffeine and carbohydrates, ingested when using these drinks

Editorials

(SO) To the Editor:
Title: More water less energy drinks
There is rising concern about the large consumption of energy drinks among young adults, adolescents and children in the US. The lack of knowledge of the potentially harmful effects of high levels of caffeine and carbohydrates in energy drinks and in a few sports drinks has proven to be detrimental. One of the reported cases involved the overconsumption of energy drinks which led to the death of an individual due to the dehydration and heart arrhythmia caused by the high caffeine content in energy drinks. Caffeine and carbohydrates are the two major components in energy drinks that provide the energy boost. The amount of caffeine in some energy drinks is way more than the recommended daily intake. Consumption of two to three cans of energy drinks per day may result in caffeine toxicity leading to heart arrhythmia, insomnia and dehydration. On the same note, high levels of carbohydrates in energy drinks may be antagonistic to diabetes and obesity.

Producers of these drinks should be responsible and perhaps indicate the side effects of overconsumption of energy drinks in the promotional advertisements and on the cans as well. In addition, they should post on each can/bottle the recommended daily consumption and content of caffeine.

Rather than drink energy drinks during or after exercise, it is better to consume water for rehydration purposes or if in the case of prolonged sweating periods resulting in electrolyte loss, sports drinks with zero calories may be used for rehydration and replenishment of the lost electrolytes. Supplements and consumables that promote good health should not take the place of healthful everyday good health practices like eating a balanced diet, getting regular exercise and respecting sleep, an often abused requirement of the human body.

(AK) To the Editor:
To: Managing Editor at Sports Illustrated for Kids Magazine Bob Der
From: Andrew Krajewski
Re: What should young athletes be drinking? Sports Drinks vs. Water

It has come to my attention that most parents do not know how to keep their child athlete properly hydrated after participating in physical activities. Most parents buy their child a sports drink such as Gatorade thinking it will keep their child hydrated and healthy. However, sports drinks are only effective when used properly. Most parents are clueless about the appropriate uses of sports drinks. Most sports drinks contain sodium, potassium, as well as other electrolytes. Although it is vital to replace these nutrients after exercise due to their importance in certain body processes, sports drinks also contain something children already get too much of, sugar.

Obesity and diabetes in children today has never been more prevalent. Sports drinks are partly to blame due to their misuse because parents do not have knowledge about healthy hydration habits for children. Although it is the parents' responsibility to read nutrition facts and find out exactly what is in these drinks, the fact of the matter is most parents do not and inadvertently put their child's health at risk. For prolonged intense workouts it has been shown that sports drinks are helpful in replenishing vital nutrients to help restore the body. However, water is the best choice for rehydration when a child is not put through intense prolonged workouts. Knowledge about this subject is the best weapon against fighting obesity and diabetes in children due to consuming high levels of sugar in their diets.

Sincerely,
Andrew Krajewski

Appendices

The pamphlet below was designed for distribution to parent and their kids at the event.

Water

- Necessary for all body functions
- Human body is over 70% water
- Helps free body of waste products
- Should drink at least 40 oz. per day
- Regulates body temperature
- Helps metabolize nutrients
- Helps prevent early signs of aging

Energy Drinks

- High in caffeine and guarana
- Can become addictive
- High in sugar
- High in carbohydrates
- Can damage heart
- Can damage liver
- Can promote insomnia

What is best for your child?

Water is the best option for children who are actively engaged in physical activity that lasts less than an hour in length. Sports drinks are recommended for activities that last longer than an hour and are physically intense. Energy drinks are not highly recommended for children who engage in physical activity due to their high sugar, caffeine contents.

Sports Drinks

- Good source of carbohydrates
- Sodium helps keep body hydrated
- Potassium helps heart and kidney function
- Contains added sugar
- Best option for children who participate in lengthy or physically intense activities

Promoting healthy habits for healthy kids.

Image source: Google Images

Parents Guide to Hydrating Young Athletes

By: Stephen Ogwang and Andrew Krajewski

- ✓ Limit high sugar foods and drinks
- ✓ Restrict carbonated beverages
- ✓ Restrict sports drinks, to be used for long/vigorous activities
- ✓ Prohibit energy drinks and high caffeine products

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