

Energy Drinks on the United States Market and Health

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Introduction

Unlike years prior to today, energy drinks are a common beverage in today's market. Today in the United States, there is a growing popularity among the niche market of energy drinks, with this there is a common demographic found among users and reasons for potential

growth as well. The growing market is expanding through the efforts among marketing and advertising, with efforts aimed towards a younger demographic ranging from students to athletes. The health effects that come along with usage of such beverages is discussed, weighing benefits and potential risks, and the current trend of mixing of alcohol and energy drinks is explored as well.

Sources and Methods

The sources that our team used to help create this paper were scholarly sources that supported the topic of our paper. We used surveys and raw data from students and others alike to get information about energy drinks and its consumption. We used both secondary and primary sources to create the paper on energy drinks and their effects and results on young adults and athletes.

Scope and Limitations

This scope of our paper consists of background information, demographic information, marketing, health effects, and alcohol with energy drinks. The limitations that our group encountered was finding resources that fit with the theme of our paper on energy drinks. It was difficult to find scholarly sources that could fit easily with the topics in our paper. Our group also experienced limitations in collecting raw data for surveys; people did not respond with the quality of answers that we were hoping for.

Background

Red Bull, Monster, AMP, RIP IT, NOS, are all drinks that will fill someone with caffeine, vitamin B12, Vitamin B6, and Taurine. Energy drinks are described as a drink intended to boost mental energy, typically containing sugar and caffeine or other stimulants. After years of new and improved energy drinks that have come out, it's proven that most people do not know what this

energy drinks were used for originally. “In 1960, Taisho Pharmaceuticals out of Japan produced the first drink that was used to specifically make the consumer increase energy. The drink first was let out as a medicinal tonic drink, but was then shown as being an energy drink later down the road. Lipovitan-D was the name of the first energy drink ever produced. It contained a mix of essential vitamins as well as containing taurine and niacin” (Mazur 2014, para. 1). These two ingredients are proven to boost energy and concentration in a person. In 1987 one of the largest and most popular energy drinks was released: Red Bull was invented and released to countries overseas. Dietrich Mateschitz added caffeine and sugar to a drink and called it Red Bull. It was not until 10 years later in 1997 that this drink was introduced to America (Mazur, n.d). This drink is one of the larger sales percentages in terms of energy drink sales in the United States.

Red Bull’s yearly sales are roughly 3.5 billion dollars. In 2002, Hansen Natural released the second largest energy drink: Monster. Between Red Bull and Monster, these two energy drinks account for over 70% of sales in the United States for all energy drink sales. In 2004, something new was started. There was a new invention that boosted energy and it only required someone to consume a small amount of liquid. This new product was called 5-Hour Energy. It is guaranteed to give a boost of energy for at least 5 hours if not more. After this was product released, the competitive edge between energy drink companies got tenser in the United States. Since the releasing of energy drinks in the United States, sales of energy drinks were up 61% in 2005-2006 (Mazur, n.d). Even though many energy drinks hit the market, Red Bull remains on top. Red Bull’s annual sales are at two billion dollars around the globe (Mazur, n.d). A new company has emerged in 2005 mixing an energy drink with alcohol. They call it the Four Loko and Phusion Pharmaceuticals released it. After 5 years, Four Loko had to remove caffeine,

taurine, and guarana from their product. It was causing too many health concerns for its consumers (Mazur, n.d). This is only the start on the large market of energy drinks.

Ingredients

Energy drinks have eight main ingredients located inside of them. Some of these ingredients cause harm for anyone to have: however, some of the ingredients are recommended to have everyday by doctors. As a college student, energy drinks are very commonly used in student's lives; it is appropriate that students know what they consist of and what they are drinking. Some ingredients vary from drink to drink on amounts and if they are included in the drink. The following will be explaining in detail the four key and most important ingredients.

Caffeine is the most common ingredient in an energy drink. Caffeine is the ingredient that gives the energy someone is looking for. For example, one can of Red Bull contains enough sugar to make 2 cans of pop. It is also equivalent to two 8-ounce black coffees. When it's heard that it is not good to consume more than 2 energy drinks in a certain time. After someone has consumed over 200 mg of sugar, the body can start to become very nervous, develop a headache, get heart palpitations, and even become nauseous. The amount of caffeine in energy drinks well exceeds the amount it required to have greater alertness and mood (Sweeney, 2011).

The second most common ingredient in an energy drink is taurine. Taurine is a sulfur-containing acid that is a free amino acid in our bodies. It is also a common ingredient found in meats. Taurine has many multi-purpose functions in the body. It makes the body perform osmoregulation, has antioxidant properties, metabolic effects, and lessens the probability of exercise-induced DNA damage and much more. Taurine has not shown any physiological benefits to the brain and that taurine and caffeine together have not shown to increase short-term memory (Sweeney, 2011). Taurine is a good product that is included in the ingredients of an energy drink.

Taurine is an amino acid that is naturally found inside of the human body. It is also found inside of seafood, scallops and some poultry. Taurine is also an ingredient that is located inside breast milk. The reason for it being a positive ingredient is due to it being located inside infant formula. Infant formula is one of the most researched products sold. That insures that taurine is a leading positive ingredient inside an energy drink because it is well researched and safe (Top Ten Facts). The leading energy drink makers however do not hide anything from you. On their packages, they voluntarily provide you with the total caffeine amounts from all sources. They also provide an advisory statement. An advisory statement sends out some kind of suggestion or warning such as “Not intended (or recommended) for children, pregnant women, or persons sensitive to caffeine.”

The third most common ingredient in energy drinks is B-vitamins. They are required for proper cell functions and important for the body. B-vitamins are one of the most important ingredients in energy drinks that the body actually needs to function. Some important B-vitamins include thiamin, riboflavin, cyanocobalamin. With B-vitamins being common in most foods, there have not been many cases containing any issues with them in the U.S. (Sweeney, 2011).

Finally, the fourth most common in energy drinks is sugar. Sugar works by sending energy to the muscles in the body. This process is taken care of through oxidation. EDs have a very excessive amount of sugar derivatives, which include sucrose and high-fructose corn syrup. . Energy drinks range of 75-200mg of sugar for every 16oz. serving. One can of Monster Energy contains 54 grams of sugar. That is equivalent to $\frac{1}{4}$ cup of sugar. One can of monster energy will give someone $\frac{1}{5}$ of their daily need for sugar. Energy drinks put a huge effect on the body over time. In the same size coffee, there is nearly double the amount ranging from 300 to 330 milligrams of sugar per cup. Long-term effects are insulin sensitivity, obesity and diabetes (Sweeney, 2011).

With the energy market-increasing daily due to more students enrolling in college and more students trying to focus for schoolwork, the ingredients in energy drinks needs to be more heavily studied. Jobs are easier to get in today's economy, and that comes with a more advanced education. The amount of education to get and obtain a job will only increase as the future comes. With more education means more studying and energy. The energy drink market will continue to increase over time and that increases importance for knowing what is being consumed.

To most people caffeine is something that is not the best for the body, and something that will cause effect on a body down the road. However, caffeine is actually a safe ingredient. Caffeine is consumed daily by billions of people, in a wide variety of foods and beverages. Caffeine is an ingredient that has been consumed for hundreds of years safely (Top Ten Facts). It is assumed that energy drinks contain the most caffeine because from a drink that gives energy, it should be the highest. But, that is not even close to being true. Most energy drinks have a less amount of caffeine than a coffee of the same size. An energy drink contains roughly half of a standard household coffee. In 16 ounces of energy drink, there is around 160 to 240 milligrams of caffeine. (Top Ten Facts).

For caffeine consumption among the U.S. population in 2012, nearly 1/3 of energy drink consumptions come from teens and young adults from ages 14 to 21. They on average, consume approximately 1/3 the amount of caffeine as people over 21 and most of that caffeine consumption is from drinks other than energy drinks. Caffeine consumption over the years however has remained very constant and steady. All energy drinks and their labels are regulated by the USFDA (Top Ten Facts). Most of the common ingredients in energy drinks are found naturally in other foods that we eat regularly. These items include seafood, poultry, grains, and different plants.

Through research done it is found that energy drinks contain much caffeine, and the data found shows that caffeine consumption is related to the age of the consumer. Knowing that there is a trend among caffeine and therefore the demographic of these energy drinks, research was done in order to reveal who the demographic is and why these products are growing in popularity.

Demographic and Popularity of Energy Drinks

Who are the users?

Christopher Hoyte, Donald Albert, and Kennon Heard (2013) discussed the popularity of energy drink usage among professional, collegiate, and Olympic athletes and revealed that the rate of use in the general population is not well studied. The use of energy drinks such as Red Bull, Monster, and 5-hour ENERGY are increasingly widespread, and are evidently related to being used as a performance enhancement. Among college students who use these energy drinks, the reasons for usage varies but are mostly desired heightened performance, whether through athletics or academics.

What are the motives of the college athletes?

In order to find the motives of these users, there was a survey conducted. The studies of Hoyte et al. (2013) show that the performance enhancing substance use is common among college athletes, and about 85% all the of the athletes surveyed reported that they used energy drinks. It was found that the popularity of these performance enhancing agents was similar across all levels of competition. The aspects of performance enhancement among athletes such as running faster, jumping higher, and heightened endurance, are suggested to be a reason for using energy drinks according to the findings of Hoyte, Albert, and Heard. Another reason for collegiate athlete use with these energy enhancing agents that Hoyte, Albert, and Heard found is to emulate behaviors

of professional athletes. (2013) An example of this is found through a study conducted in early 2011, which revealed that when asked, 52% of retired professional athletes admit to using prescription analgesic during their career. (Hoyte et al. 2013) This revealed that the use of enhancing agents professional athletes stems from earlier usage of energy drink supplements.

The use of energy drinks among athletes is ubiquitous across all groups of college athletes according to the studies and analysis done by Hoyte, Albert, and Heard, and the findings indicated that the results correlate among gender, sport, and athletic level, regardless of the demographic of the athlete, the athlete is, for the most part, admittedly a user of these products.

Knowing that the purpose of energy drinks is to essentially boost the user's energy and enhance performance, it makes it understandable that the large majority of these users are young adults, college students, and athletes. However, with this there is a confusion between energy drinks and sports drinks. *Food Weekly News* did an investigation into such drinks in order to find out more about the trend of energy drinks and sports drinks, and reason for the product's potential growth in the future. Although the concepts of energy and sports seem to go hand-and-hand, they are not necessarily related in this case. As described by *Food Weekly News*, "sports drinks are meant to replenish the fluid lost during exercise and physical activity; whereas energy drinks are to give you a boost of energy." ("Research and Markets," 2011, para. 1)

With the evident distinction between the two beverages, an analysis was then done in order to determine the world's leading sports and energy drink brands and markets. This information then helped determine the popularity of this beverages and the potential growth of market to come.

Popularity of product and why the popularity is expected to grow

Energy drinks are a global product that is evidently becoming a trend among a variety of users. There is anticipation for this trend to grow, “global demand is expected to grow at a CAGR (compound annual growth rate) of more than 10% from 2011 to 2016.” (“Research and Markets,” 2011, para. 2). The rising increase in health awareness among consumers has navigated the directions of companies supplying these beverages. (“Research and Markets,” 2011) With this health trend among consumers, a number of companies that supply these beverages including Coca-Cola Company, PepsiCo inc, GlaxoSmithKline, and Red Bull GmbH, are utilizing the concept and therefore constantly innovating and creating new products for this niche segment. (“Research and Markets,” 2011). These moves have lead to a growth in familiarity and popularity of the energy drinks, and are a reason for expected growth of the products in the future.

Energy drinks currently have typically younger demographic, and commonly it is found that users are those who are involved in school as well as athletics, and a combination of the two. (“Research and Markets,” 2011) However, with this spurt of popularity and growth among the products in this niche, it is expected that the demographic of users is to grow as well. As *Food New Weekly* describes, “the market is anticipated to continue penetrating the untapped markets and older population.” (“Research and Markets,” 2011, para. 3) However, it is also inferred that the popularity of these beverages could be in part due to the use of organic or natural ingredients. “the varieties of sports and energy drinks containing organic or natural ingredients are increasing continually at present.” (“Research and Markets,” 2011, para. 3).

Although the use of energy drinks is not universal amongst all, it is evident that the already known popular beverages are anticipated to expand.

This niche segment of energy drinks is on arise due to innovations of the major companies supplying the drinks in order to satisfy health concerns, causing growth to a larger demographic.

These trends infer that this product is growing in popularity and is expected to only get more popular in time.

Popularity among males

As previously discussed, it has been determined that the demographic of users for energy drinks is narrowed down to a young segment, typically including college students and athletes. The market of users is shown to be expanding to an older demographic, and even to those concerned with health, whom were not users before health innovations being made by major companies supplying these products. However, through further research conducted it is revealed that there is a trend among male users specifically.

The trend of energy drinks amongst males is explained through the research done by Wen-Bin Chiou, Wen-Hsiung Wu, King-Teh Lee. Chiou, Wu, and Lee suggested a relationship with the use of energy drinks with a male's sense of masculinity, and conducted research to understand it. "We used self-completion theory to examine whether exposure to the concepts of masculinity increased the desire for energy drinks and whether the use of energy drinks contributed to the achievement of a masculine sense of self." (Chiou, Wu, Lee, 2013, pg. 444)

Why the popularity is among males

The research conducted suggested that males are a popular user of energy drinks due to the concept of masculinity. The research results suggested that reminders of masculinity may increase the desire for energy drinks, and the consumption of energy drinks allow men to regulate their sense of masculinity. (Chiou et al, 2013, pg. 444). The concept of masculine self-completion as explained through this research revealed that the demographic of users of energy drinks is evident among males. Chiou et al. (2013) suggested through the results of their research that this trend of young males as users is due to the fact that they are the target. "Energy drinks

are targeted primarily towards young males and modeling is the basis of the successful advertising of energy drinks to consumers.” (Chiou et al, 2013, pg.449).

The research suggested that males and their self-completion of masculinity are more related to energy drink consumption than previously thought. This concept revealed that the demographic of energy drink users are young males who have yet to reach self-completion of their masculinity. “Men are inundated with powerful messages about masculine gender roles norms, messages that tell them what it means to “be a man”. Our findings suggest that when men need an extra edge in conveying their masculinity, Red Bull seems to be one of their best friends.” (Chiou et al, 2013, pg. 449).

Summary of demographic found

This information found indicated that the users of energy drinks are a combination of young students and athletes. The use of energy drinks amongst these young athletes are a combination of anticipated performance enhancement, as well as a way to emulate the behavior of professional athletes.(Hoyte et al. 2013) The emulation of behavior is the use of performance enhancing products, in this case energy drinks, to mock the prescription analgesic usage found among professional athletes during their careers. (Hoyte et al. 2013)

Aside from the young athletes, research discussed revealed that the popularity of energy drinks is due to the major companies supplying these products reflected health trends found in today’s food and drink market. Considering energy drinks are evidently not the healthiest of beverages, this niche segment did not extend to many health-concerned users. However, sugar-free products as well as organic ingredient implementation among major suppliers of energy

drinks in the recent years has expanded the popularity of the products. (“Research and Markets,” 2011, para. 3). These innovations of the niche segment has caused the popularity to reach an older demographic as well. The growth in reach amongst the demographic suggests that the popularity of these products is projected to grow. (“Research and Markets,” 2011, para. 3).

Conclusion of demographic and projected popularity increase

The energy drink popularity is among young adults, specifically athletes, and has begin to grow in popularity among those concerned with health awareness, research revealed that popularity is held among males. Research discussed showed that energy drink consumption and male masculinity are related, which young males targets for this market. (Chiou, Wu, Lee, 2013, pg. 449) The research revealed the current demographic, the cause of popularity and who this niche segment market is. It is projected from this research that this market is on arise and is anticipated to keep growing.

The research showed that the demographic of users is among young adults and athletes with a common trend of those young users being male. The market is growing and in order to maintain the product’s popularity and success the companies producing these energy-enhancing utilize marketing and advertising strategies.

Energy Drinks and Marketing

Marketing Introduction

An important factor in the popularity and successful sale of energy drinks is the effectiveness of the marketing plan and how the companies decide to advertise in order to gain the most effective outreach to the desired clientele. Such factors discussed are target audience or

highest consumer base and why these consumers buy the energy drinks, and top energy drink brands. Also discussed are the moral decisions of marketing to minors.

Marketing to Minors

The energy drink industry has increased by 60% since 2008 (Sifferlin, 2015, para. 1). This growth in sales has caught the attention of 3 senators (Markey, Durbin, and Blumenthal) because of the growth in a particular marketing aspect of this industry: minors. Concerned about the lack of regulation by the U.S. Food and Drug Administration, the senators feel that it may cause health problems and underdevelopment in kids and teens. The senators sent letters to 16 energy drink companies asking for the reports of any negative effects from the consumption of their product and asked that the companies agree to not market to kids and teenagers. Only four of the companies agreed to avoid marketing to people under the age of 18. Several of the major energy drink companies (Monster and Red Bull) have committed to not market to kids under the age of 12 (Sifferlin, 2015, para. 5).

In response to the report from the senators the American Beverage Association spokesperson Gindlesperger said:

Energy drinks have been enjoyed safely by millions of people around the world for more than 25 years, and in the U.S. for more than 15 years. Energy drinks, their ingredients and labeling are regulated by the FDA...Leading energy drink manufacturers voluntarily go far beyond all federal requirements when it comes to labeling... In fact, ABA member companies voluntarily display total caffeine

content...on their packages along with advisory statements indicating that the product is not recommended for children, pregnant or nursing women and persons* sensitive to caffeine (As quoted in Sifferlin, 2015, para. 7-9).

Current FDA regulations state that the companies are not breaking the rules because a FDA regulatory category for energy drinks does not exist (Sifferlin, 2015). It is not mandatory for companies to label the adverse effects or the amount of caffeine that is in energy drinks. Senators are calling on the FDA to set limits on the amount of caffeine that is safe for children to consume. As research into the possible negative side effects of energy drinks continue, it is still an unregulated industry. However, the major companies from this industry have been open about the possible side effects and are willing to comply with labeling of caffeine content, warnings as to issues with pregnancy and underdevelopment in children. Whether or not the other energy drink companies such as Rockstar, Amp, NOS and Rip It plan to follow, has yet to be determined (Sifferlin, 2015, para. 12).

Energy Drink Survey

A survey was developed and distributed (Energy Drinks, October 18, 2016) to several people using a variety of channels and was created via Survey Monkey in order to find the frequency of energy drink consumption and what age group favors energy drinks. The survey had eight questions which involved age, preference of energy drink, the main reason the survey participants drink energy drinks and activity level. The survey included both multiple choice, select all that apply, and open ended options to achieve the best results.

Distribution of Survey

A survey that was created and distributed through Canvas, Facebook and at places of employment and on Eastern Michigan University's campus. All participants were provided a link that linked directly to the survey and all surveys were completed online.

The survey was posted for 15 days and was completed by 43 people. The participants ranged from full time students to athletes to full time employees.

Energy Drink Survey Results

The results from the survey found that 60.47% of survey participants do drink energy drinks. The survey found that the age group that consumes energy drinks most frequently is the 21-30 age range with 51.16%. Following that was the age group of 15-20 years with 30.23% of the participants falling into this range. Next, participants were asked if they had ever mixed alcohol with energy drinks; 58.14% said they have not mixed, while 41.86% said they have mixed the two. The favorite energy drink was Red Bull with 48.39%, followed by Monster with 29.03%, then Amp (9.68%), NOS (6.45%) and then lastly Rockstar and Rip It (3.23)%. When survey participants were asked what their average activity level was 34.88% said that they had multiple activities daily or were busy every day; 41.86% polled that they were involved in numerous activities almost daily. Lastly, 23.26% of participants polled said that they were only involved in some activities weekly or they had a lower level of activity weekly.

Next, in the survey the participants were asked whether or not they are students, athletes, employees or parents. The results were as follows:

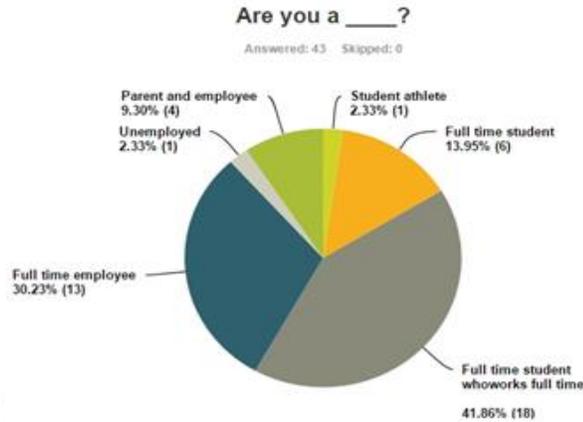


Figure 1

Finally the participants were polled on what they mainly use energy drinks for and the results were as follows:

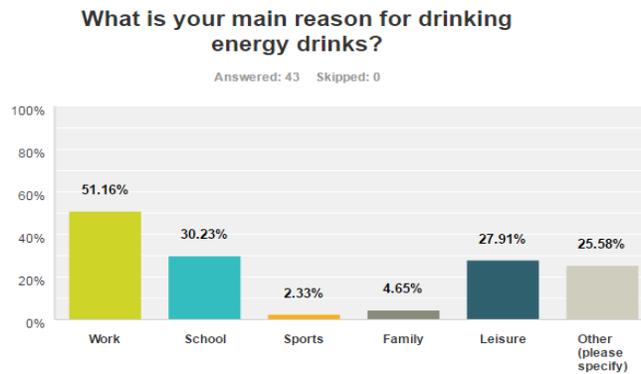


Figure 2

The “Other” category got responses of “I don’t drink them” and, “To mix with alcohol.” The most common reason for the participant’s use of energy drinks was for work followed by school, leisure drinking, and finally family and sports.

The information collected from this survey is that most survey participants did in fact drink energy drinks. However, the participants stated that they rarely drink them if only a few times a year. The average age of participants was 21-30 years old. The majority of participants said that they did not ever mix alcohol with energy drinks, and the favorite energy drink was Red Bull. The majority of survey participants are full time student who work full time. Lastly the most

common reason survey participants named for drinking energy drinks was for work. All information was collected from Survey Monkey from the student survey conducted by T.K. Bechtel.

*See appendix for copy of survey and raw data.

Energy Drink Marketing Strategy

The top two brands (based on the student survey by T.K. Bechtel 2016) are Monster Energy and Red Bull. Both brands have a similar marketing strategy. Monster Energy's slogan is "Unleash the Beast" and Red Bull's slogan is, "Red Bull Gives you wings." These two brands chose to promote in a way so as to show the effects and the massive energy boost rather than the commercials that many products rely on. Red Bull and Monster both host live events and often sponsor live sport events with a large broadcasting reach. Monster energy sponsors the X Games. Red Bull sponsors events such as the Malaysian Grand Prix and Red Bull Cliff Diving and other extreme sport outings. Both brands have several celebrity athlete endorsements as well.

Energy Drink Promotions

Monster Energy offers several different brand promotions in the form of contests and they sponsor the more mainstream professional sports such as BMX, Skateboarding, MMA, Surfing, Professional Gaming and Professional Bull Riding. Monster has contests in which participants can win prizes with codes found inside the four pack of cans. With those codes, the participant can win a trip or a video game and video game console, which attracts another marketing aspect: Gamers. They also offer a chance to win a meet and greet with celebrity athletes which attracts athletes as well as consumers that are into fitness. Monster also offers a can tab promotion in

which each tab the participant collect equals a point, and 30 points can get the participant a Monster Energy shirt.

Red Bull does not do promotional giveaways, however, they do sponsor a multitude of different events from extreme sports such as cliff diving, to concerts around the world and several different major races and videos promoting the consumption of their drinks.

Overall, Monster Energy offers more giveaways and does more to reach consumers with products and promotions and offers more in the way of gear and promotional items. Red Bull shows more of the experience aspect of the product. Red Bull shows more videos of extreme sports like mountain biking, extreme energy in sports competitions and late night fun such as concerts and parties.

The types of marketing for this niche market vary between the brands of drinks, however the health effects derived from these products seem to correlate. With this, the next research covered researches the health effects of energy drinks including health risks, health benefits and the physiological effects of the consumption of energy drinks.

Health Effects of Energy Drinks

Health Risks

Energy drinks have become a major consumer beverage since the turn of the century. It is the fastest growing beverage in the United States. With increasingly active lives, people are using energy drinks to be sharp for entire day. The highs of energy drinks are followed by a low (sugar low) that slows the metabolism down. But since 2007, energy drinks are consumed by 30%-50% of young adults. (Seifert, Schaechter, Hershorin, & Lipshultz, 2016)

Energy drinks are a sugary drink that is filled with high levels of caffeine. The high levels of caffeine can add to health effects that are adverse and beneficial. The caffeine is used as a stimulant the brain to increase energy levels for an extended period of time. Through research by the American Academy of Pediatrics, it's shown that overdoses of caffeine on multiple occasions can be harmful. Seifert, et al (2016) stated in their research;

Ireland's poison center reported 17 energy drink adverse events including confusion, tachycardia, and seizures and 2 deaths between 1999 and 2005...

"Caffeine is the main active ingredient in energy drinks; many of them contain 70 to 80 mg per 8-oz serving (3 times the concentration in cola drinks) (Para. 14)

Overdosing on caffeine can be very dangerous and lead to health complications such as vomiting, upset stomach, and abdominal pain. In addition to these issues, lack of moderation when drinking energy drinks can cause lack of sleep.

Health Benefits

Energy drinks are a stimulant that can help raise one's heart beat and energy level to make them feel more awake. Although the stigma around energy drinks is that they are not beneficial for one's health, the truth is, there are beneficial effects that can be experienced with consumption of energy drinks.

Energy drinks contain two main ingredients that can affect how one's body reacts: large amounts of caffeine and sugar. Large amounts of caffeine have been known to increase one's awareness, memory, and mood (Alsunni 2015). In a study of effects of a popular energy drink on performance and mood:

Assessments included psychomotor performance (reaction time, concentration and memory), subjective alertness and physical endurance. They showed that the studied energy drink significantly enhanced aerobic endurance and aerobic performance on cycle ergometers. (Para.14)

Increases alertness and physical endurance are the main determining factors in the new-found popularity of energy drinks among young adults. With benefits, such as enhanced endurance and alertness, it's no wonder that students and those who are busy would use energy drinks to help boost their day (Alsunni, 2015). The extra endurance and stamina seem to be reasons that young adults and others alike are buying this new drink.

Another area where energy drinks are found beneficial are cognitive motor skills. Drivers were tested before and after drinking an energy drink. The effect of the energy drinks helped with lane drifting and reaction time for up to two hours' post consumption (Alsunni, 2015).

Physiological Effects

The ingredient in energy drinks that cause physiological effects to the human body is caffeine. Caffeine can stimulate muscles in the brain and can decrease sensitivity in the nervous system. Caffeine can also cause some negative effects, such as jitteriness and anxiety. It has also been linked to having addictive traits that can cause users to have withdrawals. The physiological effects of caffeine in energy drinks are just as strong as the physical health effects of caffeine.

Caffeine is a common and popular drink that is used by millions. In a study, adults who drink energy drinks on a regular basis were examined to show the physiological effects that caffeine had on them. Seifert, et al (2016) found in their research:

Adults who consume low-to-moderate amounts of caffeine (1–3 mg/kg or 12.5–100 mg/day) have improved exercise endurance, cognition, reaction time, and mood with sleep deprivation. However, these studies typically involve habitual caffeine consumers, and results reflect withdrawal-symptom reversal. (Para. 18)

This study shows that caffeine has beneficial effects on one's physiological health, but comes with side effects. The side effect being additive behavior that can cause anxiety. From the information and studies provided seem to show that energy drinks have benefits as well as some risks that should be examined before using energy drinks.

Energy drinks contain two main ingredients; they are sugar and caffeine. But there is another ingredient, glucose, in energy drinks that seen to cause physiological effects. Glucose is a sugar that has shown to improve mental alertness, reaction times, and concentration in energy drinks around the market (Seifert, et al, 2016).

Ginseng is another ingredient found in energy drinks that causes physiological effects. Ginseng is an energy booster that is used just like caffeine. It is used in energy drinks to help stimulate the mind. Ginseng is said to have similar effects to taurine, which is another ingredient that is found in energy drinks. Seifert, et al (2016) stated in their research:

Taurine may cause this increase in stroke volume by suppressing sympathetic nervous stimulation and influencing calcium stores in cardiac muscle. Results of human and animal studies have suggested that long-term taurine exposure may cause hypoglycemia, low blood sugar, but a decreased risk of coronary heart disease. (Para. 27)

Energy drinks are one of the most popular beverages in the United States. Energy drinks have their benefits and risk associated with consumption. These energy-enhancing products can help improve physical and physiological health, but also can have adverse effects if taken in excess.

With the research done on energy drinks and the effects derived from the products it is shown that there are benefits and adverse results. However, through additional research it is shown that energy drinks are found to have a hazardous effect when recreationally mixed with alcohol.

Alcohol and Energy Drinks

Alcohol and Caffeine

In “The SAGE Encyclopedia of Alcohol: Social, Cultural, and Historical Perspectives,” Scott Martin (2015) acknowledges the risks and effects of combining energy drinks (highly caffeinated) with alcoholic beverages. Martin (2015) reports that in 2011, energy drinks grossed \$9 billion in the United States. While energy drinks have become popular, additionally, mixing energy drinks with alcoholic beverages has become very common. This combination is said to not only enhance the flavor of alcoholic beverages but to enhance the effects alcohol has on the human body. Alcohol is a depressant drug and energy drinks as stimulant drugs. When the two combine, a risk involved is the provoking of the consumer to continue to drink alcohol beyond a “safe” amount. Energy drinks also modify alcoholic beverages by enhancing euphoria which is an intense state of happiness and/or excitement (Martin, 2015). As a stimulant, caffeine jazzes up an individual's body, increasing blood pressure, heart rate and, in some cases, causing heart palpitations and an irregular heartbeat. Alcohol, on the other hand, is a depressant that slows the brain's functioning and impairs one's ability to walk, talk and think clearly. Mixed, the stimulant

and the depressant do not cancel each other out (Shrieves, 2010). According to Larry Greenemeier, alcohol and caffeine do however share one factor. Both cause the body to release dopamine. “Dopamine is a neurotransmitter associated with reward. One thing all drugs of abuse have in common is the ability to activate the dopamine system. The ability of alcohol and caffeine to stimulate the dopamine system may be one factor contributing to their use” (Greenemeier, 2010, para. 7).

Is Caffeine Dangerous?

Caffeine is not only a risky ingredient when added to alcohol, but is risky in general. Rob Stein (Stein, 2014 para.1) remembers a man who suffered a tragic incident while simply trying to be healthy. 24 year old Wade Sweatt was a man who was very conscious about what he put in his body and tried his best to choose the healthiest option he had. One summer, instead of getting his daily caffeine from a sugary cup of coffee, he instead tried powdered caffeine and mixed it with his daily cup of milk. Unfortunately, something went terribly wrong and as a result Sweatt collapsed and died. According to his father James Sweatt, “Within just a few minutes his heart began beating out of control, and eventually — within just a few minutes — his heart stopped.” One teaspoon of this form of caffeine is the equivalent of 25 cups of coffee back to back. (Stein, 2014 para.1) On November 10, The Food and Drug Administration sent warning letters to companies that produce energy drinks informing them that the addition of caffeine to their products was an unsafe ingredient. Fortunately, most companies were compliant enough to remove caffeine from their products, the addition of caffeine to alcoholic beverages is still a common trend across the globe (Martin, 2015).

Caffeine in Alcohol

Martin (2015) informs that the ingredients found in energy drinks fall under three categories: stimulants, sugar and dietary supplements; however, the most critical of these three and the one that holds the most concern is caffeine. Caffeine is one of the most popular substance consumed by humans to increase alertness for a short period of time. Similar to adenosine, when caffeine is activated excitation and inexhaustibility occurs. Additionally, caffeine reacts poorly with supplements such as antibiotics and other medications. "The recommended "safe" daily adult limit of caffeine is 400 mg per day (child and pregnant female limits are lower)" (Martin, 2015). "Researchers have evidence to support the correlation between the consumption of EDs with ethyl alcohol (ETOH) and increased risk-taking behaviors and illegal substance use" (Martin, 2015). Mixing caffeinated energy drinks with alcoholic beverages can be fatal to both the consumer and the community. Majority of alcohol consumers who combine energy drinks with alcoholic beverages leave their destination under the assumption that they are capable of operating a motor vehicle according to Martin (2015).

Mixing alcohol with highly caffeinated energy drinks may seem like an innocent gesture done while having a good time with friends and family, it can be detrimental. Four Loko also known as "black out in a can" has been banned from many institutions due to the causing of illness in consumers (Park 2010, para.1). This led to a great controversy over energy drinks. Although energy drinks such as Four Loko contain many different ingredients, the key players are alcohol and caffeine (Park 2010, para.2). As quoted in Park (2010, para.1) David Schardt refers to the remaining ingredients as "silly window dressing."

The name "Four Loko" is derived from the four main ingredients: Caffeine, alcohol, guarana and taurine. Guarana is a South African berry that is a natural source of caffeine. "Some companies put guarana in to hide how much caffeine is in their products," said Schardt. "Lots of

people don't realize what it is." (Park 2010, para.2) While the guarana seed contains over twice the amount of caffeine in coffee, it is recognized by the U.S Food and Drug Administration as a generally safe food additive. Kevin Clauson, an associate professor of pharmacy at Nova Southeastern University (Park 2010, para.2) explains that the amount of herbal supplements in energy drinks are so small that they have no effect. He states that it is the equivalent of having a headache and cutting an aspirin in half 4 times and then expecting it to be effective. Clauson argues that caffeine only cancels out the feeling of being drunk does not cancel out the actual impairment (Park, 2010). Those who consume drinks that contain caffeine and energy drinks "are more likely to binge, drive drunk, or be taken advantage of in a sexual situations than those who drink non-caffeinated alcoholic drinks" (Park 2010, para.7). This has been labeled as "toxic jock syndrome" (Shrieves,2010 para.1). According to Shrieves (2010 para.2) "One can of Four Loko in a small, young woman can produce a blood alcohol level of .15 — that's almost twice the legal limit." This can either be life threatening or provoke a life threatening event.

In addition to the dangers of intoxication, the mixing of alcohol and highly caffeinated drinks can result in cardiovascular health risks such as cardiac arrests. According to Macrae (2012,para.1), "Revellers who used energy drinks as a mixer were six times as likely to suffer heart palpitations as those who drank their alcohol straight or with a normal soft drink." Caffeine also leads to headaches, jitteriness, agitation, stomach problems and abnormal breathing. It's the equivalent of an adrenaline rush (Shrieves, 2010 para. 1).

Summary

Energy drinks are one of the most popular of all drinks sold in today's market. These drinks are found to contain ingredients such as taurine and niacin, while also containing high levels of caffeine. The high level of caffeine found in these products creates a relationship with the popularity of caffeine among young adults and the demographic found through further research done.

The demographic of users found in this niche market are of those of a younger demographic; these users typically being college athletes and students with an emphasis on males. The demographic is found to be expanding, which is due to companies adapting to health trends that are popular today such as implementation of organic products or sugar-free options. This popularity is also due to efforts among marketing and advertising, which was found to be targeted towards the demographic of young adult males.

From the research done it was found that these drinks have effects on health, and potentially severe adverse effects. This includes potential beneficial effects such as alertness, however potential adverse such as vomiting from too much caffeine or lack of sleep due to the caffeine as well, were found also. In addition to adverse effects, hazardous effects derived from mixing energy drinks and alcohol are a trend that is found in the United States today.

Executive Summary

A few of the most popular energy drinks are: Monster, Redbull, Kickstart and the infamous 5 hour energy where it all started. Energy drinks have become increasingly popular as time progresses. They are widely used by consumers as a quick and efficient source of energy to get them through the day. However, energy drinks are also often consumed for recreational purpose as well. While energy drinks may be popular and heavily consumed, they contribute to both physical and psychological affects many being negative but some positive. Studies have shown that energy drinks are most consumed by those between the ages of 21 and 30. Studies have also shown that energy drinks are mostly consumed by men.

This report will discuss all of the advantages and disadvantages of the consumption of energy drinks. This report will also pinpoint things to avoid when consuming energy drinks such as the combination with alcohol and the negative impacts it can have on the consumer. Energy

drinks are highly effective and yield many different outcomes when situation dictates. It is up to the consumer to consume responsibly and understand the risks they are potentially taking.

Conclusion

From our research and findings on the impact of energy drinks in the United States today we have found that the trend of energy drink consumption is evident. In the last few years the market has seemed to grow in regards to the niche market as well as the demographic of users. It has been indicated through our findings that with the help of expanding advertising, marketing, and adaption to market trends that this product is anticipated to keep growing.

Through the research done we have found what energy drinks are made of and the potential effects that the drink and its contents have on the body. Aside from health hazards that this product brings, dangerous trends associated with mixing these highly caffeinated drinks with alcohol are found today as well.

Recommendation

The energy drink market is expanding however, the ingredients commonly used in these drinks seem to be consistent. From our research that reveals the high caffeine content and high

sugar levels in these drinks, it is to be implied that these drinks are not the most health conscientious among all drinks in the beverage market. Having revealed this information, it is up to the general public to decide whether to continue usage or not. Although the short-term effects such as raised alertness and heightened physical endurance seem to be beneficial to users, the long-term health effects could be deemed negative. It is recommended that the general public be cautious of the possible effects when consuming these products.

Appendix

Actual Survey:

Energy Drinks

1. Do you drink energy drinks?

Yes.

No.

2. How often do you drink them?

Almost never (a few times a year)

Rarely (0-2 a month)

Somewhat often(1-3 a week)

Almost daily (4-6 a week)

Daily (7+ a week)

3. What is your age?

15 - 20

21 - 30

31 - 40

41 - 50

50 +

4. Do you ever mix alcohol with energy drinks?

Yes.

No.

5. What brand of energy drink do you prefer?

Monster

Red Bull

Rockstar

NOS

Amp

Rip It

Other (please specify)

6. What is your activity level? (jobs, sports, school, family)

High (multiple activities daily)

Medium (activities almost daily)

Low (some activities weekly)

7. Are you a ____?

Student athlete

Student athlete and full time student

Full time student

Full time student who works full time

Full time employee

Unemployed

Parent student, and employee

Parent and employee

Parent

*8. What is your main reason for drinking energy drinks?

Work

School

Sports

Family

Leisure

Other (please specify)

1/1 100

%

Submit

Raw data from survey:

Q1

Do you drink energy drinks?

· **Answered: 43**

· **Skipped: 0**

Yes.No.

Answer Choices–	Responses–
– Yes.	60.47% 26
– No.	39.53% 17
Total	43

How often do you drink them?

· **Answered: 41**

· **Skipped: 2**

Answer Choices–	Responses–
– Almost never (a few times a year)	53.66% 22
– Rarely (0-2 a month)	17.07% 7
– Somewhat often(1-3 a week)	9.76% 4
– Almost daily (4-6 a week)	9.76% 4
– Daily (7+ a week)	9.76% 4
Total	41

Q3

What is your age?

· **Answered: 43**

· **Skipped: 0**

Answer Choices--	Responses--
- 15 - 20	30.23% 13
- 21 - 30	51.16% 22
- 31 - 40	9.30% 4
- 41 - 50	0.00% 0
- 50 +	9.30% 4
Total	43

Q4

Do you ever mix alcohol with energy drinks?

· **Answered: 43**

· **Skipped: 0**

Answer Choices--	Responses--
- Yes.	41.86% 18
- No.	58.14% 25
Total	43

Q5

What brand of energy drink do you prefer?

· **Answered: 31**

· **Skipped: 12**

Answer Choices–	Responses–
– Red Bull	48.39% 15
– Monster	29.03% 9
– Amp	9.68% 3
– NOS	6.45% 2
– Rockstar	3.23% 1
– Rip It	3.23% 1
Total	31

Q6

What is your activity level? (jobs, sports, school, family)

Answered: 43

Answer Choices–	Responses–
– High (multiple activities daily)	34.88% 15
– Medium (activities almost daily)	41.86% 18
– Low (some activities weekly)	23.26% 10
Total	43

Q7

Are you a ____?(Pictured in figure 1)

Answered: 43

Skipped: 0

Answer Choices–	Responses–
– Student athlete	2.33% 1
– Student athlete and full time student	0.00% 0
– Full time student	13.95% 6
– Full time student who works full time	41.86% 18
– Full time employee	30.23% 13
– Unemployed	2.33% 1
– Parent student, and employee	0.00% 0
Parent and employee	9.30% 4
Parent	0.00% 0
Total	43

Q8

What is your main reason for drinking energy drinks?
(Pictured in figure 2)

· Answered: 43

· Skipped: 0

Answer Choices–	Responses–
Work	51.16% 22
School	30.23% 13
– Sports	2.33% 1
– Family	4.65% 2
– Leisure	27.91% 12
– <u>Responses</u> Other (please specify)	25.58% 11
Total Respondents: 43	

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