



# Fueling the Trend: Energy Drinks in High School

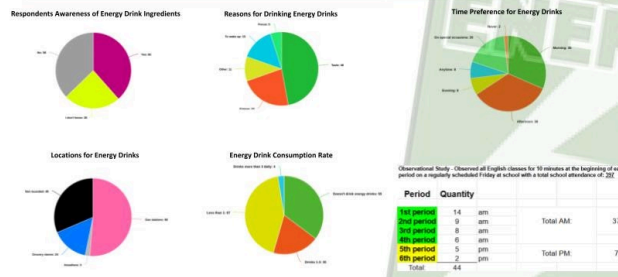


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## Introduction

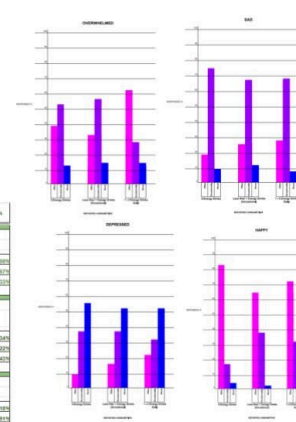
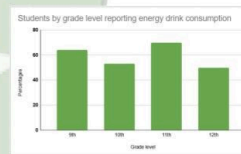
The 2024 article published by Fabian Sanchis-Gomar, Carl J Lavie, and Giuseppe Lippi called for regulations on energy drinks to protect minors' health because of the significant risks of consuming energy drinks. Stated in the article, "The consumption of energy drinks has been linked to unhealthy dietary behaviors, obesity, and mental health problems in adolescents" (Sanchis-Gomar, Lavie, and Giuseppe)<sup>1</sup>. Due to these health risks they strongly recommended regulations on the sales of energy drinks to minors in the United States for their own safety.

To bring light to these concerns the Mariposa County High School Central Valley Health Youth Corps (CVHYC) team performed a study to investigate the effects of energy drinks on high school students. The team prepared and distributed a voluntary survey to 451 high school students, receiving 156 responses. Additionally, the team observed the frequency of energy drink presence in classes throughout the school day. Students completing the survey answered questions related to their overall emotional wellbeing, energy drink consumption habits, accessibility of energy drinks, age of first exposure to energy drinks, brand preference, and why some respondents drink energy drinks.



## Findings

1. The frequency of energy drinks observed in class is the highest during the first few periods of the school day in contrast to the survey students took in which they said they prefer them in the afternoon.
2. Students who report never drinking energy drinks, more frequently report feeling happy "often" compared to students who report drinking one to three energy drinks a day.
3. Students who drink one to three energy drinks report feeling more overwhelmed compared to students who do not consume energy drinks.
4. Students who report drinking at least one energy drink report being more sad and depressed compared to students who report drinking zero energy drinks.
5. In the observational study, the team observed five times as many drinks in the morning than in the afternoon.
6. 51% of respondents report purchasing their energy drinks at a gas station.
7. Over half of the students report they do not know the ingredients in energy drinks.
8. Comparison of grade level energy drink consumption revealed 50% or more of all students in each grade level report drinking energy drinks with the highest consumption reported in 11th grade students at 70%.
9. Only 21.1% of students surveyed report never having an energy drink.
10. 52% of male, 43% of female, and 5% of other gender self identified students report energy drink consumption.
11. The Red Bull brand is reported to be the favorite among students as evidenced by both the survey and observation.



## Conclusions

The findings of the study highlight significant patterns and concerns regarding energy drink consumption among students. The frequency of energy drinks observed in class was notably higher during the first and second periods of the day, suggesting that many students begin their day with these beverages; mirroring the survey finding where students reported they drink energy drinks to wake up in the morning. However, students who consumed energy drinks - especially those drink one to three per day - reported feeling more overwhelmed, sad, and depressed compared to their peers who abstained from these drinks. This emotional and psychological impact raises questions about the potential side effects of regular energy drink consumption on student well-being.

Additionally, the study revealed that over half the students were unaware of the ingredients in energy drinks, which points to a gap in knowledge that could be contributing to unhealthy consumption habits. Despite this lack of awareness, a significant amount of students still regularly consume energy drinks. Notably, the popularity of brands like Red Bull suggests that there is a strong preference among students for specific drink options, which may influence consumption patterns. Given that 51% of energy drink purchases occur at gas stations, this suggests that these drinks are easily accessible, making them a frequent choice for students. The correlation between energy drink consumption and negative emotional states, combined with lack of ingredient knowledge, underscores the need for more educational efforts and healthier alternatives for energy drinks in school environments.

## Recommendations

To gain a broader understanding of energy drink consumption, it is recommended future CVHYC members conduct a second study that includes a wider range of schools, including high schools, middle schools, and elementary schools, as many students reported having their first energy drink before entering high school. The study should also focus on educating students about the ingredients, purpose, and potential side effects of energy drinks. Additionally, it may be valuable to consider including coffee as a type of energy drink in the research. Lastly, instead of conducting the observational study for just one day, observations should be extended to a full week to gather more comprehensive data on students' energy drink consumption patterns.



Figure 1. CVHYC Meeting



Figure 2. CVHYC Members Presenting at the Mariposa Youth Conference



Figure 3. CVHYC Members at hands only CPR training for MCHS

## Common Energy Drink Ingredients and Purpose:

**Caffeine** - Increases energy levels and happiness.  
**Guarana** - Increases energy levels and happiness.  
**Taurine** - Decreases symptoms of anxiety & depression and weight loss aid.  
**Carnitine** - Helps with weight loss.  
**Ginseng** - Improves energy and endurance.

## Possible Side Effects:

**Caffeine** - Insomnia, heartburn, anxiety, and increased heart rate.  
**Guarana** - Increased heart rate, palpitations, and anxiety.  
**Taurine** - Stomach cramps, diarrhea, and high blood pressure.  
**Carnitine** - Headaches, heart palpitations, sleep loss, and fishy body odor.  
**Ginseng** - Influences hormone levels and can cause headaches and dizziness.<sup>2,3</sup>

## References:

1. Sanchis-Gomar F, Lavie CJ, Lippi G. Strict regulations on energy drinks to protect minors' health in Europe: it is never too late to get things right at times. *Prev Med*. 2024 Mar;192:107889. doi: 10.1016/j.ypmed.2024.107889. Epub 2024 Feb 5. PMID: 38225067
2. J. K. Yu, Nutrition & Health Info Sheets for health professionals - energy drinks, UC Davis Nutrition Department (2019). Available at: <https://nutrition.ucdavis.edu/nutrition-health-info-sheets/energy-drinks/>
3. Dietary supplement fact sheets, NIH Office of Dietary Supplements, (available at <https://ods.od.nih.gov/factsheets/all/>)