

The Effect of Energy Drinks on Sleep Deprivation in College Students

The Center: AP Research STEM

• Introduction

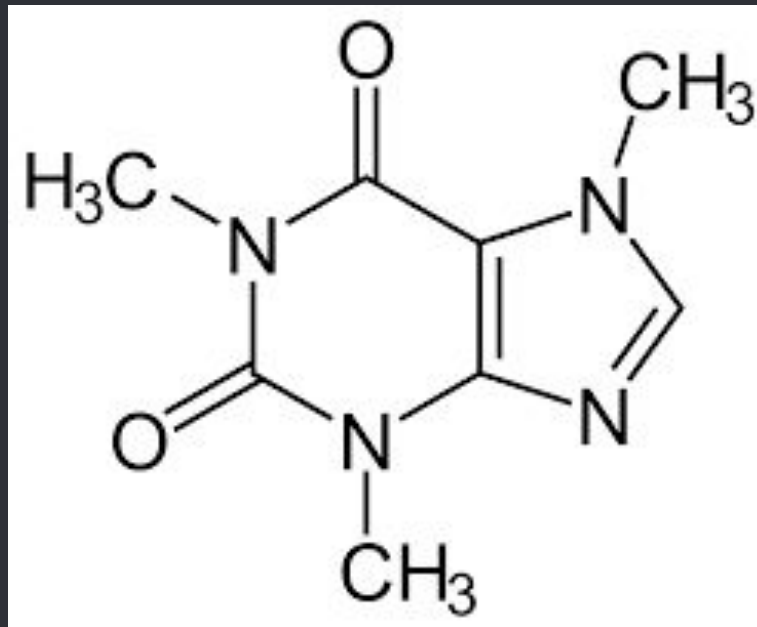
- Energy Drinks
 - 6 billion sold per year (US)
 - Stimulants: Taurine, Guarana, Caffeine



(Clauson et. al 2008)

• Introduction

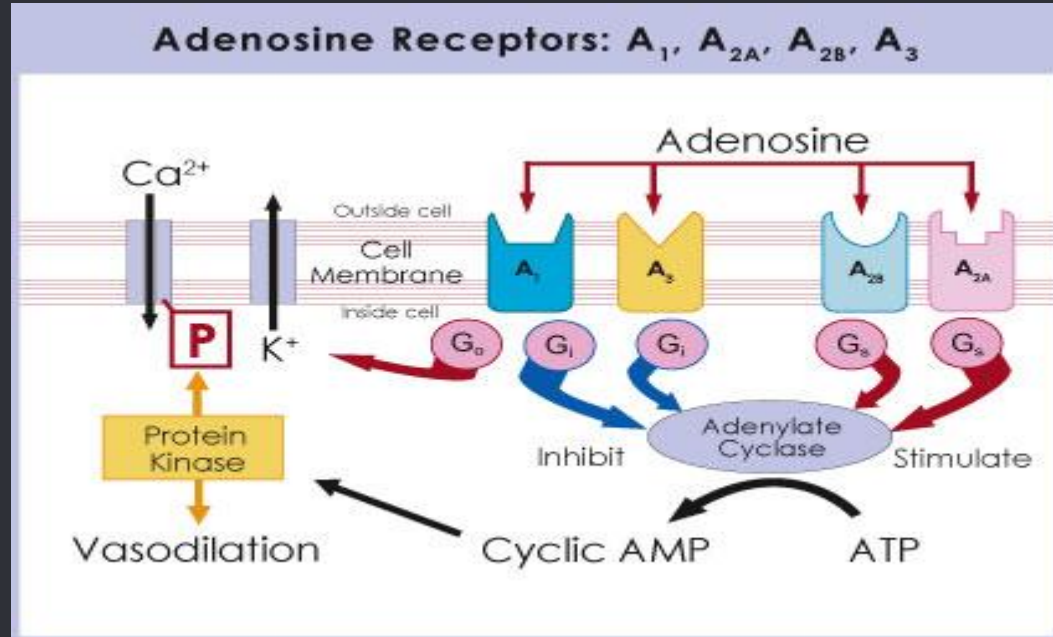
- Caffeine- $C_8H_{10}N_4O_2$
 - 300 to 400 mg suggested (FDA)
 - Monster- 160 mg per can
 - 5-Hour Energy- 80 mg per shot



(Cole, Barnhill 2013)

• Introduction

- Sleep Deprivation
 - Adenosine receptors vs. antagonists



(Bjorness, Greene 2009)



Identify potential sleep
disruption with
over-consumption of
energy drinks



Does energy drink
consumption lead to
sleep deprivation in
college students?

• Hypotheses

Alternate

Consumption of energy drinks leads to sleep deprivation in college students.

Null

Consumption of energy drinks does not lead to sleep deprivation in college students.

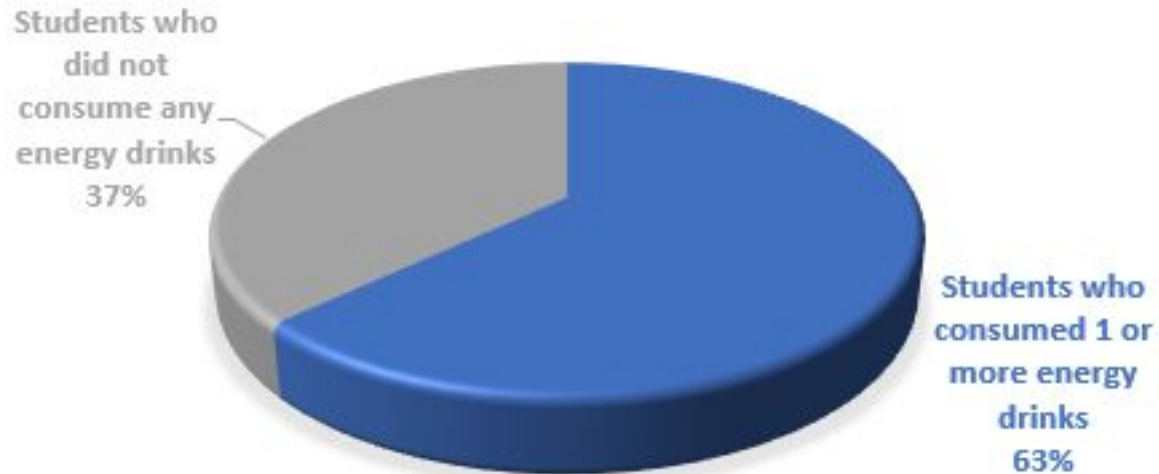
• Methods

- Systematic literature review
 - NCBI-PubMed, Google Scholar
- Primary data collection
 - Survey (n=100)
- Statistical data analysis
 - Chi Squared Method, Standard Deviation



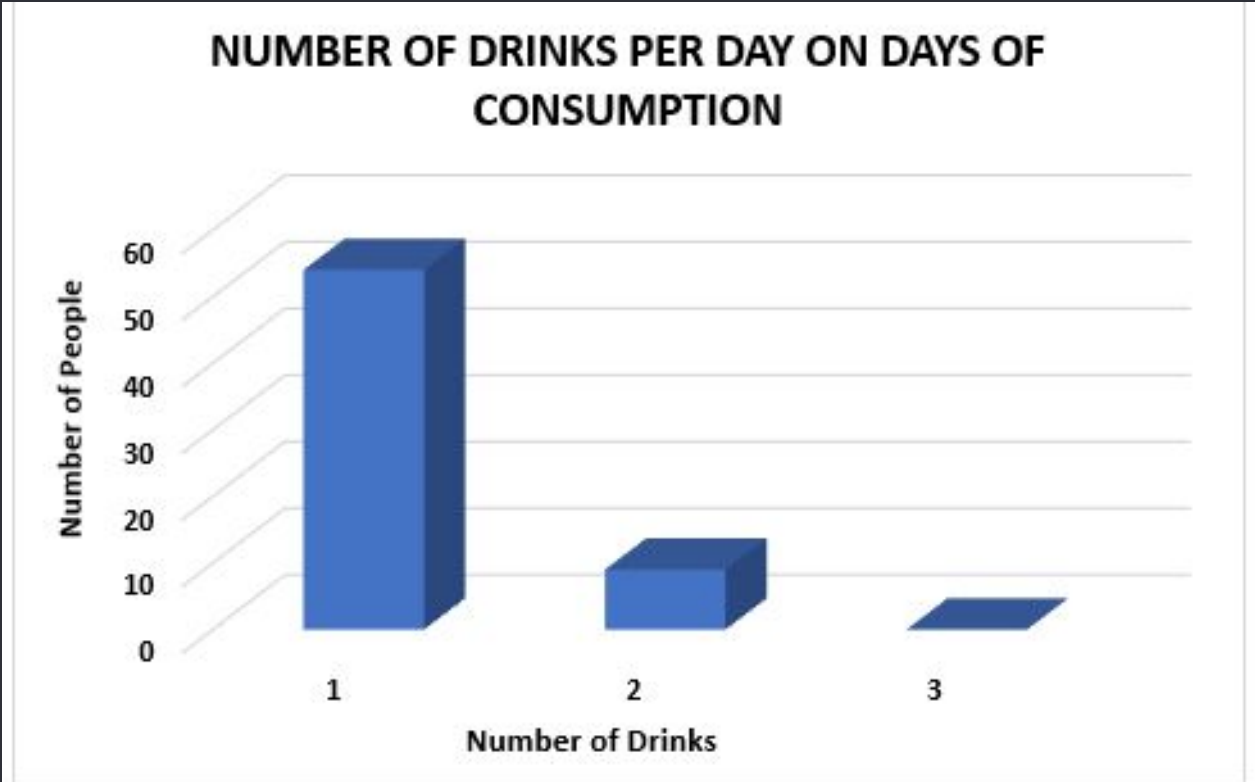
Results

COLLEGE STUDENT CONSUMPTION OF ENERGY DRINKS



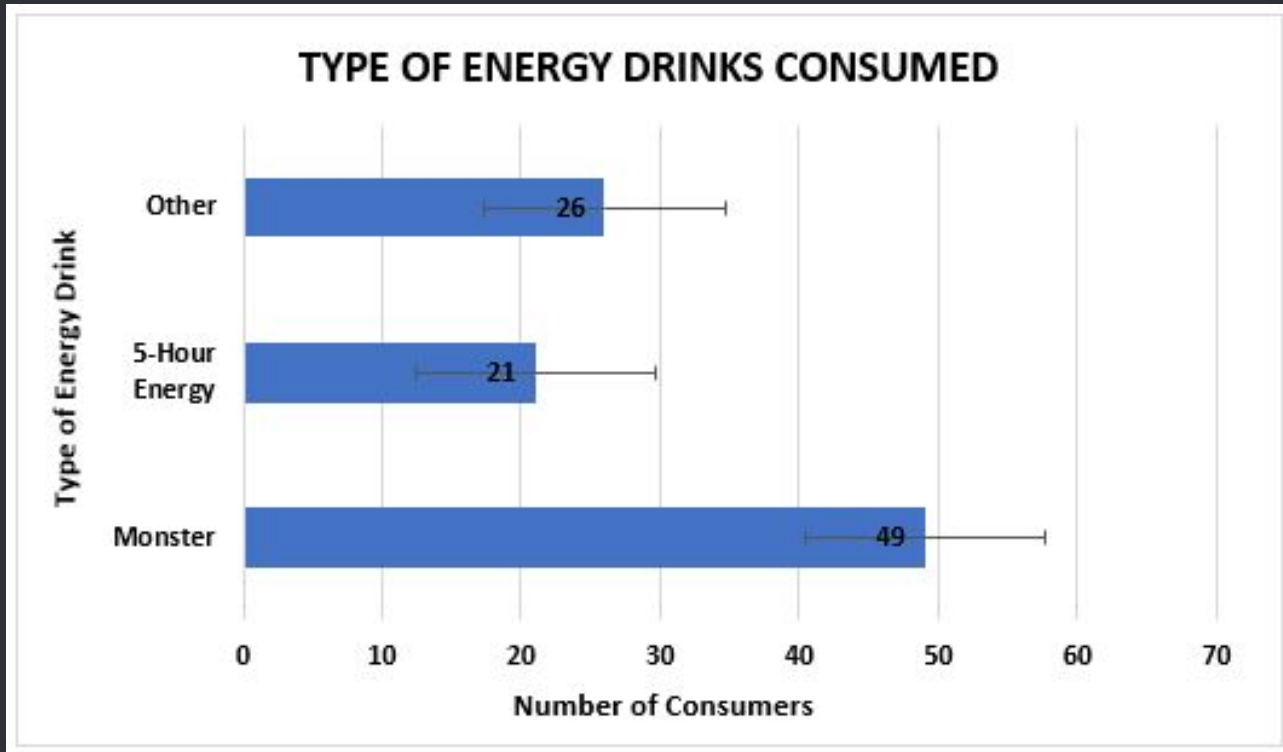
63% consumers
Out of 100 test subjects

Figure 1



85.7%
Consumed 1 drink per day

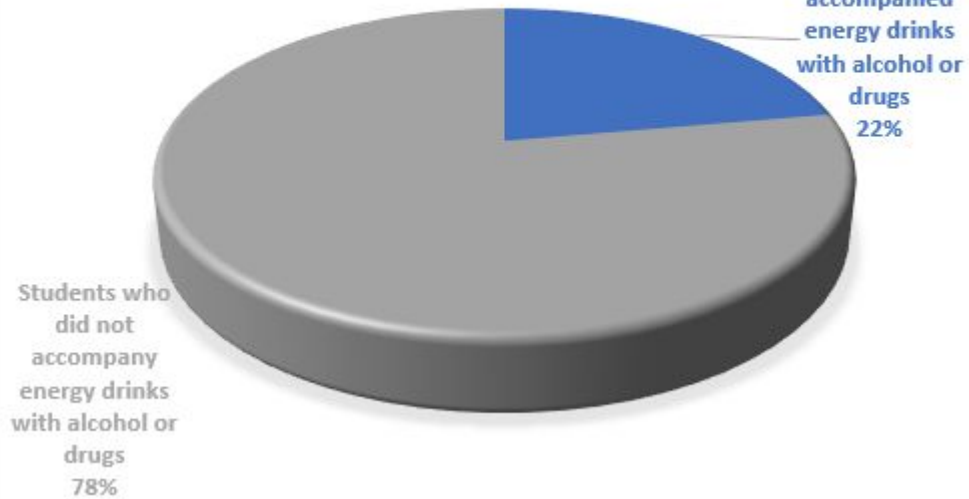
Figure 2



**Majority
Favored Monster**

Figure 3

CONSUMERS WITH ALTERNATE PAIRINGS WITH ENERGY DRINKS



22%
Accompanied
with alternate
pairings

Figure 4

35%
Noted loss in
sleep

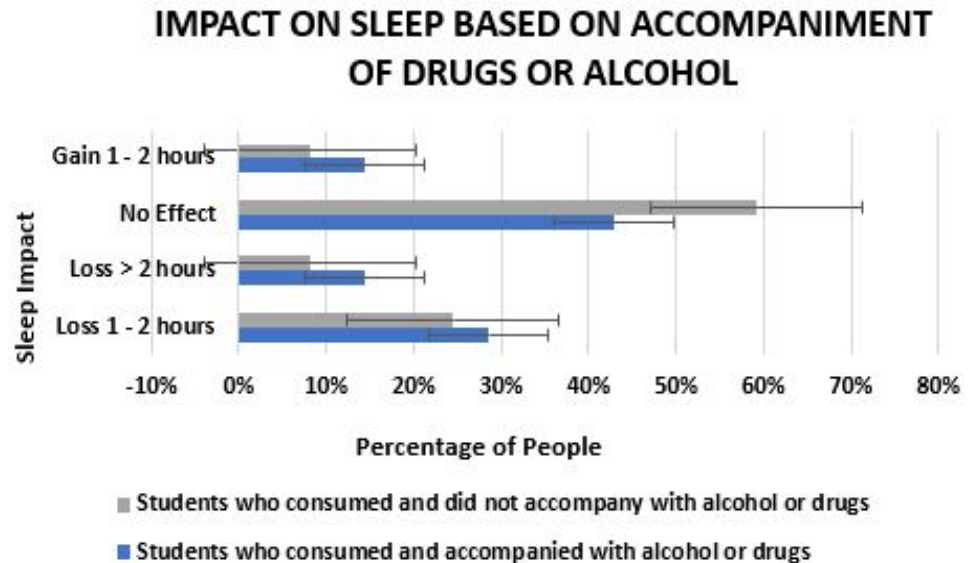
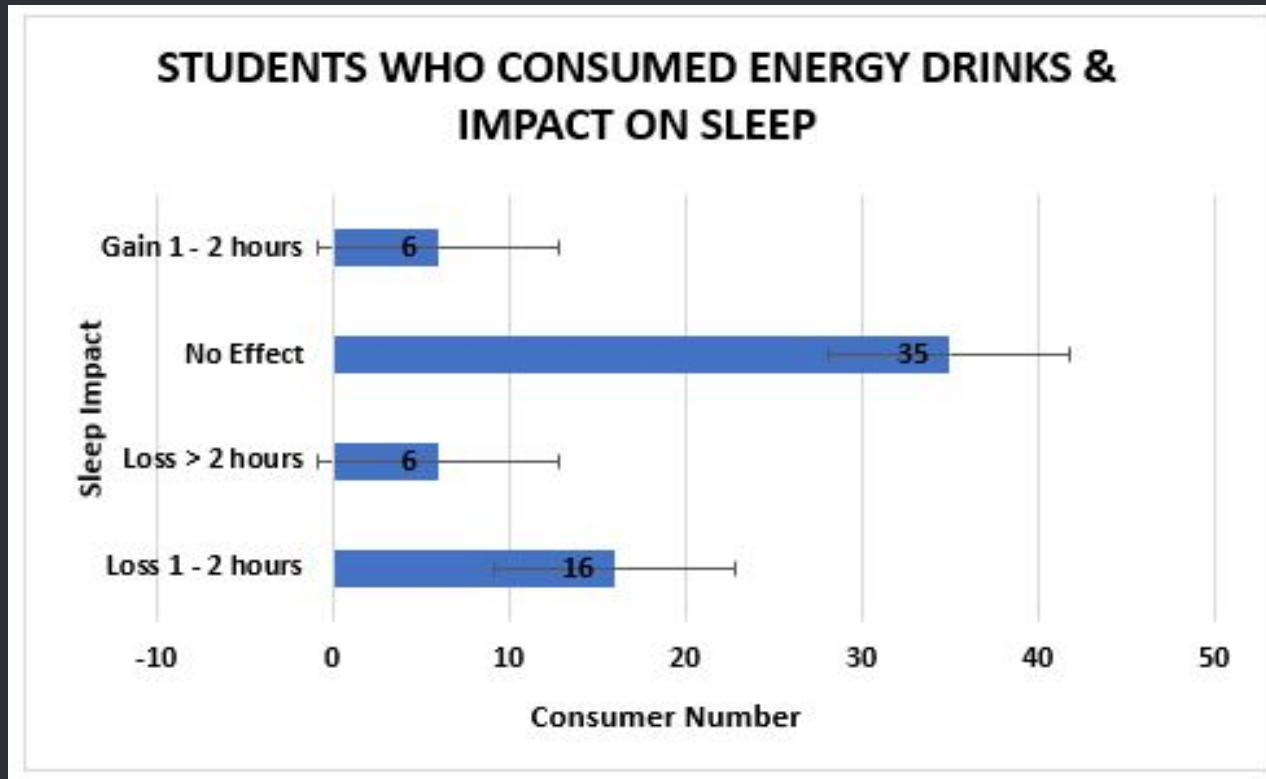


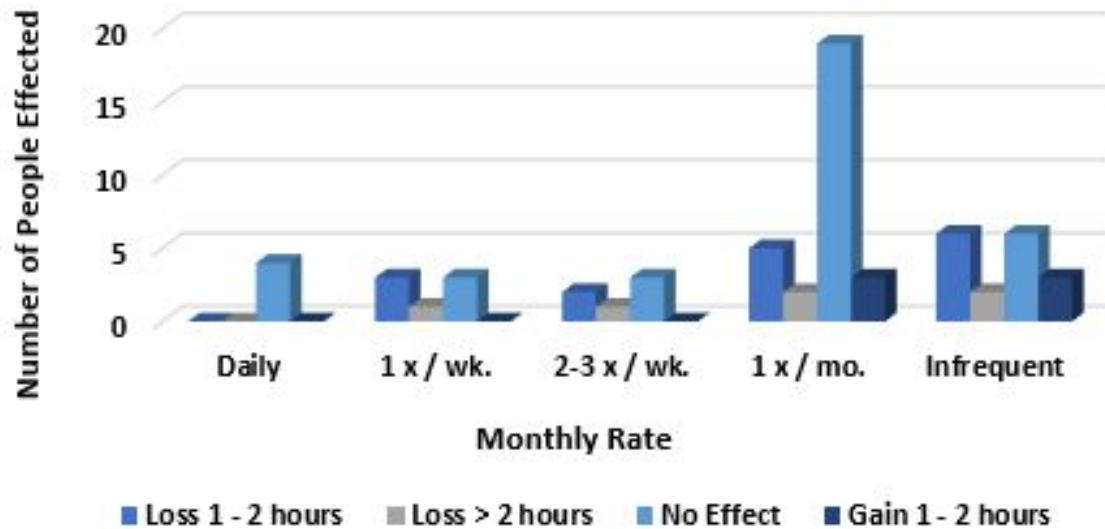
Figure 5



Majority
Did not have an effect

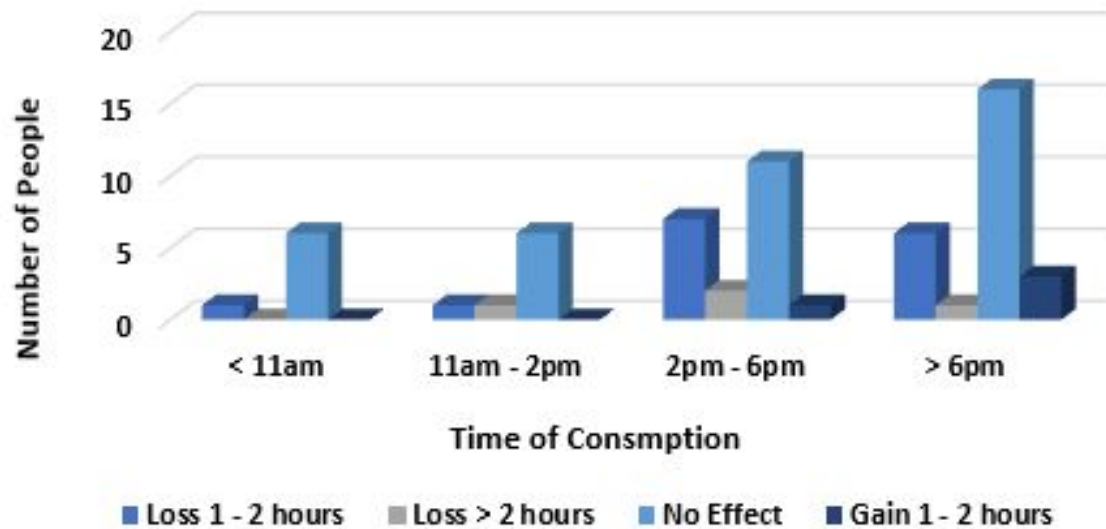
Figure 6

MONTHLY CONSUMPTION RATES AND IMPACT ON SLEEP



Monthly consumption
Had the highest rates

CONSUMPTION TIME OF DAY AND IMPACT ON SLEEP



**Later Times
Led to a larger effect**



Discussion



Null Hypothesis accepted

Low number of participants

35% noted sleep loss

Including consumers with alternate pairings

100 subjects

Surveyed at CLU, MC, VC

• Further Work



Expand

Alternative

Educate

• Acknowledgements

○ I would like to express my gratitude towards

- Dr. Nikki Malhotra
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California Lutheran
UNIVERSITY




MOORPARK
COLLEGE

• References

Clauson,K, Shields,K, McQueen,C, Persad,N (2008) “Safety issues associated with commercially available energy drinks” www.pharmacytoday.org

Cole,J, Barnhill,A (2013) “Caffeine Content Labeling: A Missed Opportunity for Promoting Personal and Public Health” doi:10.1089/jcr.2013.0017

Bjorness,T, Greene,R (2009) “Adenosine and Sleep”doi: 10.2174/157015909789152182

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