Peter Gorge

03/31/2025

Lang Prize Reflective Essay

My review article titled “Evaluating the Effects of Energy Drinks on Athletic Performance and Health” was inspired by research that I conducted in Fall of 2024 for the class “Writing in the Professions: Health” (UWP104F). Broadly, our “review article assignment” required us to interview a friend and ask them about a health-related topic that they would like to learn more about. After the interview, we were tasked with using the resources from the UC Davis library to conduct a literature review so that we could present our findings to our interviewees.

For this assignment, my interviewee was my roommate who found particular interest in the topic of energy drinks and their effects on health. This topic seemed fitting because my roommate was an avid energy drink consumer; oftentimes, he would consume energy drinks up to 5 times per week and sometimes multiple in a day. Although his reasons for drinking this high volume were for studying purposes and performance in the gym (common reasons among college students), he was concerned about the potential harm that these drinks may inflict and if the performance benefits outweigh the risks.

Given that this was my first time conducting formal research, I wasn’t familiar with the library’s website and the resources that I had access to as a UC Davis student. However, with the support of Dr. Standjord and Erik Fausak (the health sciences librarian), I was given the direction I needed to begin and sustain my research. In Erik Fausak’s presentation to our class, I learned how to use Ivanti to access the library’s VPN off-campus which is where I conducted the majority of my research. Additionally, he referred the class to the UWP104F course guide, where he recommended the UC Davis library catalog for a background search and the PubMed and SCOPUS databases for more in-depth research. Going further, he also showed us how to use Boolean operators such as “AND” and “OR” within the “Advanced Search” option for both databases. Without a doubt, Erik Fausak’s introduction to these resources has been foundational to the development of my review. Learning that PubMed and SCOPUS are two of the most credible databases containing thousands of peer-reviewed papers, I quickly made the decision to use these databases as my primary sources of information

Equipped with the basic search skills, I first used the library catalog to gain a better personal understanding of my research topic. I found a 2019 textbook titled “Sports and Energy Drinks” where I was able to view the table of contents and download the specific chapters I was interested in. In addition, using the “Advanced Search” in PubMed, I inputted keywords such as “energy drinks”, “performance”, “health”, “adverse”, “benefits”, and “pathology” to supplement my knowledge-base through review articles. I used various combinations of these terms with various Boolean operators to refine my search. I also filtered the review article results to prioritize recency (last 5 years) because I wanted information that encompasses the most current understanding of the literature. I also prioritized diversity by reading multiple review articles that compile different types of primary data. For example, in the context of the “Effects of Energy Drinks on Health”, one review only included randomized controlled trials, while another only included observational studies. Because of this, they each provided unique perspectives.

An added benefit of reading these reviews was that I began to understand how they are formatted and the type of content they contain. In doing so, I was able to get a better idea of how to write a review myself.

After gaining this foundational knowledge, I organized major findings in a google doc to keep track of key points and to create an outline for my review. I also identified sub-topics that I wanted to explore such as how energy drinks have been marketed to adolescents. Simultaneously, I also identified areas where research was limited. From there, I began to search for primary research articles that addressed specific sub-questions in hopes of filling in some of the gaps in the current literature. However, I realized that the search strategies that I initially employed for the review articles excessively limited my results. This was especially the case for highly specific questions such as the cellular mechanisms of caffeine and less-studied questions such as the effects of energy drinks on adolescent renal health.

So, this is when I began using wildcards within PubMed. Wildcards are word-roots with asterisks such as “path*” or “cardio*” which broadens the search criteria by including results with words containing the same root. For example, the search term “cardio*” would yield articles that contain the words “cardiovascular”, “cardiology”, “cardiomyopathy”, etc. Additionally, I began using the MeSH subject list within PubMed to refine my searches.

These additional strategies were particularly helpful in my search for case reports in the “Effects of Energy Drinks on Health” section which generally did not appear with my basic

searches. For information that was still difficult to come across in PubMed, I explored those topics SCOPUS. I used SCOPUS as a secondary database as it is much larger than PubMed, contains journals across multiple disciplines, and allows me to easily view the number of citations for articles. SCOPUS was particularly helpful for sources in the "Effects of Energy Drinks on Adolescent Health" section. This is because research on the adverse effects for this population is incredibly limited, with the exception of behavioral research. In fact, the research that details the effects on the adolescent cardiovascular system comes almost exclusively from a small research team in Germany, as detailed in my review.

Throughout my search for resources, all of these strategies were incredibly helpful. Once I had the majority of my sources, I assigned them to topics then started writing. When it came to writing the marketing and athletic performance sections, developing my claims and establishing lines of reasoning went smoothly without any major obstacles. However, when I got to the general health section, I found myself heavily relying on the work of other reviews, instead of synthesizing my own research claims. This was the biggest obstacle because I realized my research was becoming redundant.

So, I went back to resource searching in PubMed and SCOPUS, looking for case reports to form original claims. Using the search strategies mentioned above, I compiled 50 cases across 10 case report articles that reported adverse effects for 3 major organ systems. From there, I summarized the findings from each report in an excel sheet and then made pie charts which I used as my figures. In the search of these case reports, relevance and diversity were the primary concerns as I needed data that accurately represented the variety and relative proportions of adverse effects. After re-writing this health section with my new data, I integrated this section smoothly within the paper and cited all claims. I then proceeded to write my conclusion, introduction, and abstract where my core results were contextualized and summarized.

Overall, this project has given me a deeper understanding of the research process. Over the course of this project, I read over 45 different sources that included reviews, randomized controlled trials, clinical trials, observational studies, case reports, and editorials. In doing so, I have developed my understanding of the different types of research designs and have improved my ability to find relevant information within each paper. Additionally, I learned how to search for accurate and credible information; thanks to Erik Fausak, Dr. Strandjord, and the course guides available on the library's website, I was able to use advanced strategies to navigate large

databases to find relevant information. Lastly, I learned how to bring it all together through the writing process; I learned to organize the current literature, develop my own arguments, and identify areas where further research is warranted. AI was not used in the writing of my review.