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Energy Drink Consumption, Caffeine Knowledge, and Screening Attitudes Among Medical Students at Two U.S. Medical Schools

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Shivani Srivastava [1], Christin Traba [2], Laryssa Patti [3], Jeremy Grachan [1]

1. Office of Education, Rutgers New Jersey Medical School, Newark, USA 2. Pediatrics, Rutgers New Jersey Medical School, Newark, USA 3. Emergency Medicine, Robert Wood Johnson University Hospital, New Brunswick, USA

Corresponding author: Shivani Srivastava, ss4413@njms.rutgers.edu

Abstract

Introduction: This study characterized energy drink consumption, caffeine knowledge, self-reported symptoms, and attitudes toward caffeine screening among medical students at two allopathic medical schools.

Methods: We distributed an anonymous cross-sectional online survey to approximately 1,360 medical students in fall 2025, and 247 completed it (estimated response rate, 18%). The survey assessed energy drink use, reasons for and timing of use, caffeine knowledge, self-reported symptoms, and attitudes toward clinical screening. Groups were compared using chi-square tests, and comparisons by gender and training year were exploratory.

Results: Overall, 177 of 247 respondents (71.7%) reported lifetime energy drink use. Only 130 (52.6%) correctly identified 400 mg as the maximum recommended daily caffeine intake for adults, and 91 (36.8%) correctly estimated the caffeine content of a 16-ounce (oz) energy drink. Knowledge did not differ significantly by school, gender, or training year, and energy drink users were more likely than nonusers to answer both knowledge questions correctly. Among the 177 consumers, the most common symptoms after consumption were increased heart rate (n = 138, 78.0%), sleep disturbances (n = 125, 70.6%), anxiety/nervousness (n = 114, 64.4%), and palpitations (n = 88, 49.7%). Most respondents (n = 214, 86.6%) believed healthcare professionals should routinely ask patients about energy drink and caffeine use.

Conclusions: In this cross-sectional survey, energy drink use was common among medical students and was accompanied by gaps in caffeine knowledge and commonly reported symptoms. Teaching caffeine dosing and label reading in medical school may improve caffeine literacy and help students counsel patients, and future studies should test this directly.

Categories: Nutrition, Medical Education
Keywords: caffeine, caffeine literacy, energy drinks, medical students, nutrition education, preventive counseling

Introduction

Energy drinks are widely consumed caffeinated beverages, with their main target market being teenagers and young adults aged 18 to 34 [1]. Medical students commonly face high academic stress and disturbed sleep [2,3]. A meta-analysis of 71 studies estimated that 42.9% of undergraduate students consume energy drinks, most often for studying and examinations, to stay awake or alert, or for sports [4]. The included studies, however, varied widely in how they measured consumption.

A 500 mL energy drink typically contains 70 to 200 mg of caffeine, and some single cans contain up to 250 mg, usually combined with taurine, guarana, B vitamins, and sugar [5]. The U.S. Food and Drug Administration (FDA) cites 400 mg of caffeine per day as an amount not generally associated with negative effects in most adults. Because a 16-ounce energy drink can contain 54 to 328 mg of caffeine, consumers who drink more than one can easily reach or exceed this amount [6]. Energy drink use has been linked to tachycardia, palpitations, and hypertension, as well as anxiety and sleep disturbance [7,8].

Despite these effects, medical training may not prepare students to recognize or counsel patients about common dietary exposures such as caffeine. Nutrition education in medical school has long been considered insufficient [9,10], and practical topics such as caffeine dosing, dietary supplement safety, and label interpretation may receive little explicit attention. This gap matters for preventive care because physicians are expected to counsel patients on diet, substance use, and cardiovascular risk.

Studies from other countries have found gaps in medical students' knowledge of the physiological effects of energy drinks, along with commonly reported adverse symptoms after use [11,12]. A recent review of 14 studies of caffeine and energy drink use among medical students identified only one from the United States,

and that study focused on caffeine intake [13,14]. In a Polish study of medical and nonmedical university students, only 31.3% correctly identified the 400 mg daily limit, and medical students used energy drinks as often as nonmedical students despite knowing more about their ingredients and adverse effects [15]. To our knowledge, no U.S. study has assessed medical students' knowledge of caffeine limits together with their energy drink use, symptoms, and attitudes toward screening. We therefore described energy drink use, self-reported symptoms, caffeine knowledge, and attitudes toward screening among medical students at two allopathic medical schools, and compared these measures between schools. We also examined whether caffeine knowledge was associated with energy drink use. Comparisons by gender and training year were exploratory.

This article was previously presented as a meeting poster at the 2026 International Association of Medical Science Educators (IAMSE) Annual Conference on June 7, 2026.

Materials And Methods

Study design and setting

We conducted a cross-sectional study using an anonymous online survey of medical students at two allopathic medical schools, Rutgers New Jersey Medical School and Rutgers Robert Wood Johnson Medical School. Each school has its own curriculum and a class size of approximately 160 to 175 students. The Rutgers Institutional Review Board deemed the project exempt (Pro2025001395), and all participants provided electronic informed consent. Data were collected from October 2 to November 4, 2025.

Participants and recruitment

Enrolled medical students aged 18 years or older were eligible, and participation was voluntary and uncompensated. The survey link was sent through institutional class listservs to approximately 1,360 students across all training years, followed by two reminders.

Survey instrument

The survey was administered through Microsoft Forms (Microsoft Corporation, Redmond, Washington), took approximately 10 minutes to complete, and collected no identifying information. Age was recorded as a self-reported whole number, and date of birth was not collected. Items covered demographics (medical school, training year, age, gender identity, and cardiovascular history), consumption frequency for eight types of caffeinated beverages, reasons for and timing of energy drink use, caffeine knowledge, symptoms and withdrawal after energy drink use, and attitudes toward clinical screening. Knowledge items asked about the maximum recommended daily caffeine intake, the approximate caffeine content of a 16-ounce (oz) energy drink, known effects of energy drinks, and sources of information about them. Items on consumption frequency, reasons for and timing of use, and symptoms were adapted from published questionnaires used in university and medical populations [11,12,16]. The study team developed the items on caffeine dosage knowledge and screening attitudes. The survey was refined through several rounds of review by faculty investigators at both schools, who revised the wording, order, and response options of the items. Eight medical students then reviewed the survey for clarity and length, and their feedback was incorporated before administration. The complete instrument is provided in the Appendices. The primary outcome was self-reported symptoms after energy drink consumption, and the secondary outcomes were caffeine knowledge accuracy and screening attitudes. Lifetime use and age at first consumption were reported descriptively.

Data analysis

Analyses were performed using IBM SPSS Statistics, Version 29.0 (Released 2022, IBM Corp., Armonk, New York). All 247 submitted surveys were complete and were included in the analysis. No formal sample size calculation was performed; all eligible students at the two participating schools were invited to participate. Descriptive statistics summarized participant characteristics, consumption, knowledge, and symptoms, with categorical variables reported as counts and percentages and continuous variables as means with standard deviations. Knowledge items were scored as correct or incorrect, with “Don’t know” scored as incorrect. A symptom was counted as reported if a respondent selected occasionally, frequently, or always. Pearson chi-square tests compared caffeine knowledge, lifetime energy drink use, and support for screening by school, gender, and training year, and compared caffeine knowledge between energy drink users and non-users. Phi (ϕ) or Cramér’s V is reported as the effect size. Gender comparisons included men and women only, and training-year comparisons excluded MD/PhD students (n = 5) because of small group sizes. Comparisons were not adjusted for multiple testing. Statistical significance was set at a two-sided $p < 0.05$.

Results

Participant characteristics

A total of 247 students completed the survey, an estimated response rate of 18% of approximately 1,360 eligible students. Of these, 148 (59.9%) attended Rutgers New Jersey Medical School and 99 (40.1%) attended Rutgers Robert Wood Johnson Medical School. The mean age was 25.8 years (SD = 2.7; range, 22-34 years),

and most respondents identified as women (n = 157, 63.6%). All training years were represented, and fourth-year students formed the largest group (n = 74, 30.0%). A total of 102 respondents (41.3%) reported an existing cardiovascular condition, a family history of cardiovascular conditions, or both (Table 1).

Characteristic	n	%
Medical school		
Rutgers New Jersey Medical School	148	59.9
Rutgers Robert Wood Johnson Medical School	99	40.1
Year in training		
M1	45	18.2
M2	53	21.5
M3	70	28.3
M4	74	30.0
MD/PhD	5	2.0
Age		
Mean ± SD (range)	25.8 ± 2.7 (22-34)	
Gender identity		
Woman	157	63.6
Man	85	34.4
Non-binary	3	1.2
Prefer not to say	2	0.8
Cardiovascular history		
Existing condition	12	4.9
Family history only	85	34.4
Both	5	2.0
Neither	145	58.7

TABLE 1: Participant demographics (N = 247)

M1: first-year medical student, M2: second-year medical student, M3: third-year medical student, M4: fourth-year medical student, MD/PhD: dual-degree (MD/PhD) student, SD: standard deviation.

Caffeine and energy drink knowledge

Although most respondents recognized the potential effects of energy drinks, only 130 (52.6%) correctly identified 400 mg as the maximum recommended daily caffeine intake for adults, and only 91 (36.8%) correctly estimated the caffeine content of a 16-oz energy drink (Table 2). Personal experience was the most common source of information about energy drinks (n = 161, 65.2%), and only 31 (12.6%) had received information from a healthcare provider.

Knowledge item	n	%
Awareness of potential effects of energy drinks (select all that apply)		
Jitteriness/restlessness	243	98.4
Increased heart rate	242	98.0
Heart palpitations	239	96.8

Insomnia	228	92.3
Anxiety	221	89.5
Heart rhythm abnormalities	181	73.3
High blood pressure	180	72.9
Headache	165	66.8
Chest pain	142	57.5
Shortness of breath	97	39.3
Maximum recommended daily caffeine intake for adults		
200 mg	65	26.3
400 mg (correct)	130	52.6
800 mg	15	6.1
Don’t know	37	15.0
Approximate caffeine content in a 16-oz energy drink (correct: 100-200 mg)		
<50 mg	0	0.0
50-100 mg	2	0.8
100-200 mg (correct)	91	36.8
200-300 mg	95	38.5
>300 mg	31	12.6
Don’t know	28	11.3
Sources of information about energy drinks and their associated cardiovascular effects (select all that apply)		
Personal experience	161	65.2
Social media	125	50.6
Friends/family	118	47.8
Medical/health websites	100	40.5
News media	78	31.6
Educational materials	60	24.3
Healthcare provider	31	12.6
No information received	20	8.1

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Medical/health websites	100	40.5
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Educational materials	60	24.3
Healthcare provider	31	12.6
No information received	20	8.1

TABLE 2: Energy drink and caffeine knowledge (N = 247)

The survey described a 16-oz energy drink as the size of a Monster or Rockstar, or two Red Bulls.

Energy drink consumption patterns and symptoms

Lifetime energy drink use was reported by 177 respondents (71.7%), whose mean age at first consumption was 19.6 years (SD = 3.9), around the start of undergraduate education. Coffee was the most frequently consumed caffeinated beverage, with the highest proportion of respondents drinking it daily or more often (Figure *1*). Students used energy drinks mainly to stay awake (n = 145, 81.9%), increase energy (n = 132, 74.6%), and improve concentration (n = 95, 53.7%), and their use rose most often during study sessions (n = 90, 50.8%), before studying (n = 82, 46.3%), and before examinations (n = 79, 44.6%). Withdrawal symptoms were reported by 71 consumers (40.1%), and 17 (9.6%) described them as severe. The most common symptoms after consumption were increased heart rate (n = 138, 78.0%), sleep disturbances (n = 125, 70.6%), anxiety/nervousness (n = 114, 64.4%), and palpitations (n = 88, 49.7%), as shown in Table *3*. These percentages include respondents who reported a symptom occasionally, frequently, or always, and Figure *2* shows the full distribution.

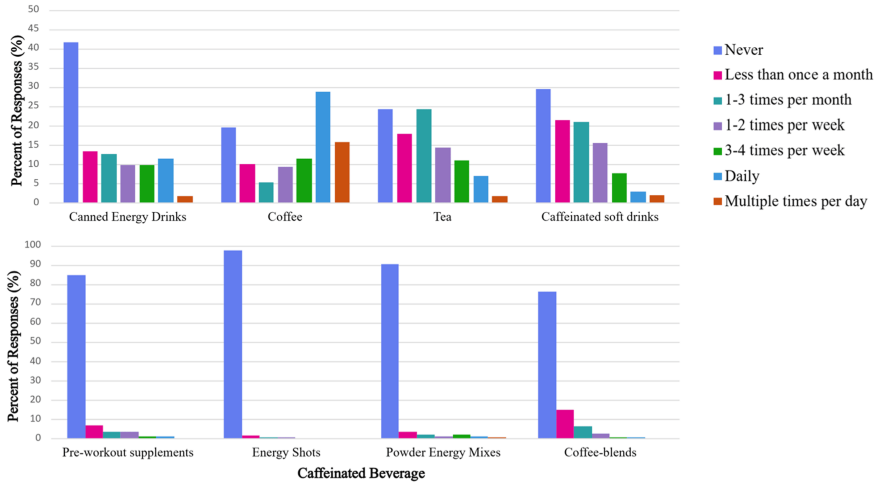


FIGURE 1: Consumption frequency of caffeinated beverages among medical students (N = 247). The top panel shows frequency distributions for canned energy drinks, coffee, tea, and caffeinated soft drinks. The bottom panel shows distributions for pre-workout supplements, energy shots, powder energy mixes, and coffee blends. Frequency was reported on a seven-point scale (never to multiple times per day).

Variable	n	%
Lifetime energy drink consumption (N = 247)		
Yes	177	71.7
No	70	28.3
Age at first consumption, mean ± SD (consumers, n = 177)		
Years	19.6 ± 3.9	
Primary reasons for consumption (select all that apply, n = 177)		
To stay awake	145	81.9
To increase energy	132	74.6
To enhance concentration	95	53.7
Taste preference	44	24.9
Out of habit	20	11.3
Situations when consumption increases (select all that apply, n = 177)		
During study sessions	90	50.8
Before studying	82	46.3
Before examinations	79	44.6
Before early morning classes/rounding	77	43.5
During clinical rotations	60	33.9
Before physical activities	48	27.1
To meet deadlines	47	26.6
After early morning classes/rounding	38	21.5

Withdrawal symptoms when not consuming (n = 177)		
Yes, severe	17	9.6
Yes, mild	54	30.5
No symptoms	54	30.5
Don’t consume regularly	52	29.4
Self-reported symptoms after consumption (n = 177)		
Increased heart rate	138	78.0
Sleep disturbances	125	70.6
Anxiety/nervousness	114	64.4
Palpitations	88	49.7
Headaches	62	35.0
Dizziness	29	16.4
Chest pain	21	11.9
Shortness of breath	21	11.9

TABLE 3: Energy drink consumption patterns and self-reported symptoms (N = 247, consumer subgroup n = 177)

Self-reported symptom counts include respondents reporting each symptom occasionally, frequently, or always.

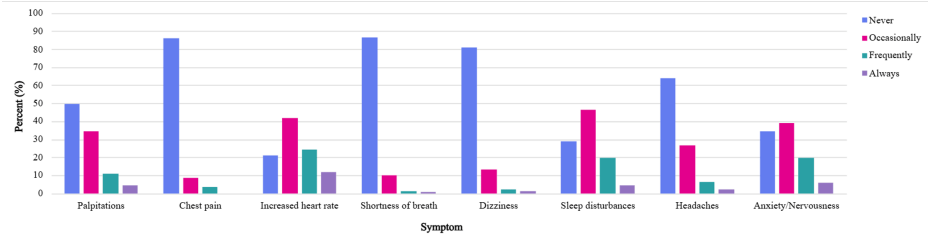


FIGURE 2: Self-reported symptoms after energy drink consumption among consumers (n = 177). For each symptom, bars show the full distribution of reported frequency across four categories: never, occasionally, frequently, and always.

Attitudes toward screening

Most respondents (n = 214, 86.6%) believed healthcare professionals should routinely ask patients about energy drink and caffeine use as part of the social history, and 175 (70.9%) viewed energy drink use among medical students as a health concern.

Comparisons by gender, school, and training year

Caffeine knowledge did not differ significantly by gender, either for identifying the 400 mg limit (60.0% of men vs. 48.4% of women; $p = 0.085$) or for estimating energy drink caffeine content (42.4% vs. 33.1%; $p = 0.154$). Lifetime energy drink use was more common among men than women (81.2% vs. 66.2%; $p = 0.014$), and support for routine screening was more common among women (90.4% vs. 80.0%; $p = 0.022$). The two schools did not differ significantly on any measure (Table 4). Across training years, knowledge of the daily limit ($p = 0.947$), caffeine content estimation ($p = 0.774$), and lifetime use ($p = 0.384$) did not differ significantly. Support for routine screening differed by training year ($p = 0.018$, $V = 0.20$), declining from 95.6% among first-year (M1) students to 90.6% among second-year (M2) students, 88.6% among third-year (M3) students, and 77.0% among fourth-year (M4) students. Energy drink users were more likely than nonusers to correctly answer the daily limit question (57.1% vs. 41.4%; $p = 0.027$, $\phi = 0.14$) and the caffeine content question (44.6% vs. 17.1%; $p < 0.001$, $\phi = 0.26$).

Outcome	NJMS (n = 148), n (%)	RWJMS (n = 99), n (%)	p	φ	Men (n = 85), n (%)	Women (n = 157), n (%)	p	φ
Correct 400 mg limit	78 (52.7)	52 (52.5)	0.978	0	51 (60.0)	76 (48.4)	0.085	0.11
Correct caffeine content	56 (37.8)	35 (35.4)	0.692	0.03	36 (42.4)	52 (33.1)	0.154	0.09
Lifetime energy drink use	106 (71.6)	71 (71.7)	0.987	0	69 (81.2)	104 (66.2)	0.014	0.16
Supports routine screening	129 (87.2)	85 (85.9)	0.768	0.02	68 (80.0)	142 (90.4)	0.022	0.15

TABLE 4: Caffeine knowledge, energy drink use, and support for screening by school and gender

p-values are from Pearson chi-square tests. φ = phi coefficient. The gender comparison excludes non-binary (n = 3) and prefer-not-to-say (n = 2) respondents.

NJMS: Rutgers New Jersey Medical School; RWJMS: Rutgers Robert Wood Johnson Medical School.

Discussion

Energy drink use was common in this sample of medical students and was accompanied by gaps in caffeine knowledge, commonly reported symptoms, and strong support for routine screening. These findings suggest that practical caffeine education may be a useful addition to health professions training.

Nearly three-quarters of respondents had used energy drinks, starting at a mean age of 19.6 years, and their use increased around academic stressors such as examinations and clinical rotations. This pattern is consistent with evidence that college students commonly use energy drinks after insufficient sleep, to increase energy, and while studying or completing major projects [16]. Most consumers used energy drinks to stay awake (n = 145, 81.9%), and most also reported sleep disturbances (n = 125, 70.6%), although the cross-sectional design cannot establish whether energy drink use contributes to poor sleep.

The knowledge gaps are the findings most relevant to medical education. Only 91 respondents (36.8%) correctly estimated the caffeine content of a 16-oz energy drink, and only 130 (52.6%) identified the FDA-cited 400 mg limit. Knowledge did not differ significantly by gender, school, or training year, which is consistent with limited coverage of these topics in training, although curriculum content was not examined. Topics such as caffeine dosing, label interpretation, and dietary supplement safety may be taught inconsistently. This fits broader concerns about nutrition education in medical school [9,10] and international studies reporting gaps in medical students' knowledge of the effects of energy drinks despite common use [11,12]. The share of our respondents who identified the 400 mg limit (n = 130, 52.6%) was higher than the 31.3% reported among Polish university students [15], although the survey instruments differed, and nearly half of our respondents still could not identify this benchmark. Energy drink users were also more likely than nonusers to answer each of the two caffeine knowledge questions correctly, so greater knowledge was present alongside energy drink use in this sample. Caffeine literacy, including the ability to estimate intake from common beverages and recognize signs of overconsumption, is a practical skill for any clinician who counsels patients about diet, cardiovascular risk, or sleep.

The symptoms reported here, including increased heart rate, sleep disturbances, anxiety/nervousness, and palpitations, are consistent with the known physiological effects of high-caffeine beverages [7,8]. Seventeen consumers (9.6%) reported severe withdrawal symptoms, which may indicate habitual use in a subset of consumers. Medical students often experience poor sleep and burnout [3,17], so regular stimulant use in this population warrants further study. Support for routine screening differed across training years, from 95.6% among M1 students to 77.0% among M4 students. Because this is a cross-sectional comparison, the difference may reflect cohort effects rather than change within individuals.

Although 214 students (86.6%) supported routine caffeine screening, only 31 (12.6%) had received information about energy drinks from a healthcare provider. This may represent a missed opportunity in student health, since medical students with healthier personal habits and those at schools that encourage student health report more prevention counseling with patients [18].

Implications for education and practice

These findings suggest a role for targeted caffeine, nutrition, and dietary supplement education in health professions curricula. Options include brief modules on caffeine dosing and the 400 mg threshold, label

interpretation exercises using common energy drinks, case-based content in pharmacology or wellness courses, and screening prompts in clinical skills training. These additions may not require major curriculum changes and are consistent with long-standing calls to strengthen nutrition education in health professions training [9]. Because Polish medical students used energy drinks as often as non-medical students despite knowing more about them [15], education may work best when paired with attention to sleep and workload.

Student health providers could also add a simple caffeine question to routine wellness visits, alongside existing sleep and stress screening, which could identify students at risk from overconsumption earlier and model the screening behavior expected of future clinicians.

Future studies could use multi-institutional samples, validated dietary instruments to estimate total caffeine intake, and longitudinal designs to measure the effects of curriculum and screening interventions.

Limitations

This study has several limitations, beginning with its cross-sectional design and reliance on self-report, which prevent causal inference and may introduce recall bias. Survey response rates among health professionals have been declining [19], and our response rate of approximately 18% means nonresponse bias is possible because students with stronger views about energy drinks may have been more likely to participate. Although all training years and both schools were represented, this self-selection could inflate prevalence and symptom estimates. Because both schools belong to the same university system, the findings may not generalize to other settings. Race and ethnicity were not collected, total daily caffeine intake was not calculated, and the survey was not externally validated. There was no comparison group, symptoms were not linked to the quantity consumed, and the cardiovascular history item did not define cardiovascular conditions and may have been interpreted broadly. Caffeine content also varies across products [6], reliability testing was not performed, and comparisons were not adjusted for multiple testing.

Conclusions

Most medical students in this study had used energy drinks, often to stay awake for studying, examinations, and early clinical duties, and many reported increased heart rate, poor sleep, or anxiety afterward. Their knowledge of caffeine was uneven, since they recognized common effects such as jitteriness but were less aware of serious cardiovascular effects, and many could not identify the recommended daily limit or estimate how much caffeine a typical energy drink contains. These gaps did not differ across training years, although a cross-sectional design cannot establish whether training addresses them.

Students largely agreed that clinicians should ask patients about caffeine use, yet few had ever received this information from a healthcare provider themselves, and most learned about energy drinks through personal experience and social media. Medical schools may consider modest changes, such as teaching caffeine dosing and label reading, covering the serious cardiovascular effects of high caffeine intake, and asking about total caffeine use, not only energy drinks, at student wellness visits. Such steps may support students' own health and their preparation to counsel future patients on caffeine use.

Appendices

Energy drink consumption survey

Consent: Participants first viewed an online consent form describing the study and indicated "I agree" or "I do not agree" to the following statement: "I acknowledge that I am 18 years of age or older and have read and understand the information. I agree to take part in the research, with the knowledge that I am free to withdraw my participation without penalty."

No.	Question	Response format/options
Demographic Information		
1	Which medical school are you a student at?	Rutgers New Jersey Medical School; Rutgers Robert Wood Johnson Medical School
2	Year of medical school	First; Second; Third; Fourth; MD/PhD (currently on PhD years)
3	Age	Open numeric entry
4	Gender identity	Woman; Man; Non-binary; Prefer not to say; Other
5	Which of the following are potential effects of energy drinks you are aware of? Select all that apply.	Jitteriness/restlessness; Increased heart rate; Insomnia; High blood pressure; Heart palpitations; Anxiety; Chest pain; Heart rhythm abnormalities; Shortness of breath; Headache; None of the above; Other

6	Based on your current knowledge, what is the maximum recommended daily caffeine intake for adults?	200 mg; 400 mg; 800 mg; I don't know
7	Based on your current knowledge, what is the approximate caffeine content in a 16-ounce energy drink (i.e., size of Monster or Rockstar or 2 Red Bulls)?	Less than 50 mg; 50–100 mg; 100–200 mg; 200–300 mg; More than 300 mg; Don't know
8	Where have you received information about energy drinks and their associated cardiovascular effects? Select all that apply.	Healthcare provider; Medical/health websites; News media; Social media; Friends/family; Personal experience; Educational materials; I have not received information about this topic; Other
9	How often do you consume the following caffeinated beverages? Rated separately: canned energy drinks (e.g., Celsius, Red Bull, Monster, Rockstar, NOS); coffee; tea; caffeinated soft drinks; pre-workout supplements; energy shots (e.g., 5-hour Energy, Tweaker); powder energy mixes (e.g., Celsius On-the-Go, C4 Energy); coffee blends marketed as "energy" but not standard drip coffee (e.g., Starbucks Doubleshot Energy, Starbucks Refreshers)	Never; Less than once a month; 1–3 times per month; 1–2 times per week; 3–4 times per week; Daily; Multiple times per day
Questions Related to Energy Drinks		
The following questions are about your consumption of drinks marketed as "energy drinks," such as Red Bull, Celsius, 5-Hour Energy.		
10	Have you ever consumed energy drinks?	Yes; No
11	If yes, at what age did you start consuming energy drinks?	Open numeric entry
12	What are your primary reasons for consuming energy drinks? Select all that apply.	To stay awake; To increase energy; To enhance concentration; Taste preference; Out of habit; Other
13	When do you increase energy drink consumption? Select all that apply.	Before studying; During study sessions; Before examinations; During clinical rotations; Before early morning classes/rounding; After early morning classes/rounding; Before physical activities; To meet deadlines; My energy drink consumption does not increase with different activities; Other
14	How frequently do you experience the following symptoms after energy drink consumption? Rated separately: palpitations; chest pain; increased heart rate; shortness of breath; dizziness; sleep disturbances; headaches; anxiety/nervousness	Never; Occasionally (less than half the times you consume); Frequently (more than half the times you consume, but not every time); Always
15	Do you experience withdrawal symptoms (e.g., headache, fatigue, decreased alertness, drowsiness, difficulty concentrating, depressed mood, irritability, unclear thinking) when you don't consume energy drinks?	Yes, severe (symptoms are intense, interfere with daily functioning or concentration, and may last several hours or more); Yes, mild (symptoms are present but manageable, do not interfere significantly with daily tasks, and are short-lived); No symptoms (I do not notice any changes when I stop or refrain from drinking energy drinks); Don't consume regularly (withdrawal does not apply)
16	Do you have any existing cardiovascular conditions or do you have a family history of cardiovascular conditions?	Yes, existing conditions; Yes, family history; Both; Neither
17	If yes to either or both, has this affected your choice to consume energy drinks? Why or why not?	Open text
18	Do you view energy drink consumption among medical students as a health concern?	Yes; No
19	If yes, what interventions do you think would help reduce energy drink usage?	Open text
20	Do you believe healthcare professionals should routinely ask patients about energy drink and general caffeine consumption as part of social history?	Yes; No
21	Please explain your answer to the previous question.	Open text

TABLE 5: Energy drink consumption survey

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Shivani Srivastava, Christin Traba, Jeremy Grachan, Laryssa Patti

Acquisition, analysis, or interpretation of data: Shivani Srivastava, Christin Traba, Jeremy Grachan, Laryssa Patti

Drafting of the manuscript: Shivani Srivastava, Christin Traba, Jeremy Grachan, Laryssa Patti

Critical review of the manuscript for important intellectual content: Shivani Srivastava, Christin Traba, Jeremy Grachan, Laryssa Patti

Supervision: Jeremy Grachan

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Rutgers Institutional Review Board issued approval Pro2025001395. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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