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Wired: Energy Drinks, Jock Identity, Masculine Norms, and Risk Taking

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Abstract

Objective—The author examined gendered links among sport-related identity, endorsement of conventional masculine norms, risk taking, and energy-drink consumption.

Participants—The author surveyed 795 undergraduate students enrolled in introductory-level courses at a public university.

Methods—The author conducted linear regression analyses of energy-drink consumption frequencies on sociodemographic characteristics, jock identity, masculine norms, and risk-taking behavior.

Results—Of participants, 39% consumed an energy drink in the past month, with more frequent use by men (2.49 d/month) than by women (1.22 d/month). Strength of jock identity was positively associated with frequency of energy-drink consumption; this relationship was mediated by both masculine norms and risk-taking behavior.

Conclusions—Sport-related identity, masculinity, and risk taking are components of the emerging portrait of a toxic jock identity, which may signal an elevated risk for health-compromising behaviors. College undergraduates' frequent consumption of Red Bull and comparable energy drinks should be recognized as a potential predictor of toxic jock identity.

Keywords

athletics; college health; energy drinks; gender; toxic jock identity

According to the prevailing media campaign for a popular energy drink in the United States, "Red Bull gives you wings." Whether the consumption of Red Bull and comparable stimulant beverages is also associated with the complex of behaviors and attitudes that comprise a *toxic jock identity* (defined as a sport-related identity predicated on risk taking and hypermasculinity) remains open to question (K.E. Miller, PhD, unpublished data, April 2006).[1,2] Energy-drink advertising consistently emphasizes a physically active lifestyle featuring a range of extreme sports, putting male athletes squarely in the crosshairs for this product.[3] However, although a small but growing number of researchers have examined the physiological and psychological impacts of these substances, little attention has been devoted to the identification of typical user characteristics. My purpose in the present study was to examine links between sport-related identity, adherence to conventional norms for masculine behavior, risk taking, and energy drink consumption, with particular attention to the gendered relationship between jock identity and this type of substance use.

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Linking Energy Drinks and Sports

Energy drinks such as Red Bull, Monster Energy, Rock-star, and Full Throttle occupy a large and growing place in the consumption habits of adolescents and emerging adults, with sales exceeding half a million dollars in 2006, a more than 50% increase over 2005 sales.[4,5] Containing caffeine, taurine, vitamins, and usually sugar, these drinks are generally marketed as enhancing alertness or providing a short-term energy boost and do not constitute suitable sources of rehydration or restoration of electrolytes in association with athletic activity.[6,7]

Nevertheless, the marketing strategies that have netted energy drinks an ever-expanding share of the global market since their introduction in 1987 rely extensively on imagery associated with extreme sports such as snowboarding, rock-climbing, parasailing, and BASE jumping.[8,9] In fact, Red Bull built its high-octane reputation via an early and strong association with motor sports. The company has recently expanded its reach by sponsoring high-profile sports events and owning teams, including the New York Red Bulls soccer team, several Austrian soccer and ice hockey teams, and NASCAR and Formula One racing teams. Although the company makes no specific claim that its product enhances athletic prowess, it is no coincidence that Red Bull devotes approximately one-third of its annual marketing expenditures to sports sponsorships.[10]

Physiological Effects of Energy Drinks

Researchers[11–15] have identified moderate positive effects of energy drinks on both cognitive and physical performance. Alford et al[11] found that Red Bull consumption moderately improved psychomotor performance (specifically concentration, reaction time, and short-term memory), subjective perceptions of alertness, and physical endurance in nonathletes. Warburton et al[15] confirmed that even after controlling for the possible effects of glucose or the alleviation of caffeine withdrawal, moderate combined doses of the key ingredients in Red Bull—caffeine and taurine—improved accuracy and reaction time in visual information processing, as well as attention and verbal reasoning.

However, several researchers who explicitly examined the physiological and psychological effects of energy drinks on athlete samples found contrary results. Male runners who consumed an energy drink prior to a cross-country race subsequently rated their perceived exertion lower than did runners who consumed a placebo beverage, although neither drink affected race performance.[16] Carvajal-Sancho and Moncada-Jiménez[6] found no effect of energy-drink consumption on physical (strength, power, or speed performance) or cognitive (reaction time, short-term memory, or mood) outcomes in a sample of male soccer players.

In the past few years, health officials have grown concerned about the use of energy drinks as mixers with alcoholic beverages; for instance, the Web site Drinknation.com offers recipes for an impressive 201 Red Bull-based alcoholic concoctions.[17] Increasingly popular among clubgoers, these cocktails are widely believed to increase enjoyment while reducing the symptomatic lethargy and physical impairment associated with drunkenness. To my knowledge, only Ferreira et al[18] have tested the interaction of energy drinks and alcohol. Compared with alcohol alone, ingestion of the mixed cocktail reduced perceptions of impaired coordination, headache, weakness, and dry mouth, whereas objective impairment of visual reaction time, motor coordination, and breath alcohol concentration remained unaffected. Combining the stimulant effect of caffeine and the depressant effect of alcohol may lead drinkers (and the bartenders who determine when they will no longer be served) to underestimate their level of intoxication, with potentially lethal consequences.[3]

Sport-Related Identity and the Toxic Jock

Although several researchers have examined the direct effects of energy drinks on physical and mental performance in athletes and others, most consumers are not extreme athletes. Athletic involvement has multiple dimensions, and one need not actually participate in sports to develop a sport-related identity.[2,19] However, to my knowledge, no investigators have yet explored the connection between energy drinks and such identities.

Diverse sport-related experiences are likely to lead to the development of distinct and sometimes incompatible sport-related identities, such as *athlete* and *jock*. Although these labels are often colloquially used in more or less interchangeable fashion, empirical exploration of the distinction between them is relatively new. Researchers[20–22] conducting extant studies on athletic involvement generally have used a single, global construct to capture the idea of sport-related identity, to the extent that they have addressed subjective identity at all (as opposed to more easily quantified and thus commonly used objective measures, such as team membership or frequency of sports activity).

However, investigators in a handful of emerging studies have begun to explore the often incompatible nature of sport-related identities commonly conflated by researchers. Miller et al[2] argue that athlete identity and jock identity derive from different structural and subjective experiences and, in fact, may have markedly different implications for substance use and other health-risk behaviors. A series of recent quantitative analyses have identified a pattern in which self-identified "jocks" were at elevated risk for problem drinking,[23] sexual risk taking,[24] academic misconduct, [1] interpersonal violence,[25] delinquency,[26] and suicide attempts, whereas self-identified athletes reported reduced levels of depression (K.E. Miller, PhD, unpublished data, April 2006).

These analyses build an implicit portrait of 2 very different outgrowths of the sporting experience: the disciplined, conventionally prosocial scholar–athlete and the risk-embracing, violence-prone "dumb jock." However, to my knowledge only Miller et al[2] have attempted a nuanced exploration of this divergence. In their 2005 focus group study, college sports team participants profiled the archetypical jock. In contrast to an athlete identity, which might accompany any sport, construction of a jock identity required a fairly narrow set of conditions. Jocks were likely to participate in one of a handful of high-profile sports (eg, football, basketball, wrestling) characterized by significant physical contact and rich in conventionally masculine imagery. To build on these findings, this constellation of privilege, structured violence, and compelling gender expectations revolving around certain high-status sports arguably constitutes fertile ground for the development of a sport-related identity that derives as much from an ethic of risk taking and hegemonic masculinity as from any objective association with organized sports activity. A toxic jock identity with these characteristics would likely be conducive to the kinds of health-compromising or delinquent behaviors found by Miller et al.[2] It likely would marry well with the core philosophy of in-the-moment extreme physicality that the energy-drink industry exploits so effectively. Presumably, self-identified jocks should be disproportionately likely to consume energy drinks, with or without alcohol. Furthermore, although jock identity is not exclusive to men,[3] a marketing appeal so clearly tailored to conventional male interests should be less effective in attracting female users.

Energy Drinks, Sport, Masculinity, and Risk

The public image of many energy drinks revolves around the nexus of sport: masculinity and risk taking. Energy-drink companies encourage consumers who identify with extreme-sport imagery in particular to participate vicariously via their own energy drink consumption. Skyrocketing sales for these products suggest that the marketing strategy has been successful; however, to my knowledge, no researchers have yet conducted empirical research assessing

the relative importance of each component of this imagery. Thus, in the present analysis, I tested 3 hypotheses:

H1: Strength of jock identity is positively associated with the frequencies of both energy-drink and energy mixed-drink consumption.

H2: The relationships between jock identity and energy-drink/energy mixed-drink consumption are mediated by conformity to masculine norms and risk taking.

H3: The relationships between jock identity and energy drink/energy mixed drink consumption are stronger for men than for women.

METHODS

Data

I designed the 2006 Athletic Involvement Study for 2 purposes: (1) to develop comprehensive measures of athletic involvement and (2) to examine links among athletic involvement, gender norms, and adolescent and young adult health risks, including substance use, unsafe sex, and other high-risk outcomes. I asked undergraduate students enrolled in large introductory-level courses at a large public university to review and sign an informed consent document before completing a 45-minute anonymous questionnaire. The university's Social and Behavioral Sciences Institutional Review Board evaluated and approved the study protocol. Each participant received $10 compensation for their time and effort; for students in some courses, the study also counted for research credit that could be applied toward fulfillment of a course requirement. Of the approximately 1,500 students invited to participate in the study, 795 submitted viable questionnaires.

Measures

Participants were asked, "In the past 30 days, on how many days did you drink a Red Bull (or similar energy drink)?" Response options, which for analytical purposes I recoded to the midpoint of each category, included 0 (*0 days*) 1.5 (*1–2 days*), 4 (*3–5 days*), 7.5 (*6–9 days*), 14.5 (*10–19 days*), 24.5 (*20–29 days*), and 30 (*all 30 days*). Preliminary analyses indicated that the distribution of this variable was markedly kurtotic (17.22) and skewed toward 0 (skew = 3.80), violating the assumptions of the proposed multiple regression analysis. Log transformation of the measure reduced kurtosis (−1.51) and skewness (0.57) to acceptable levels.

A parallel question asked about past-month frequency of consuming a drink that mixed alcohol with an energy drink. Preliminary analyses showed that this variable was similarly abnormally distributed (kurtosis = 22.82; skewness = 4.40). Again, I performed log transformation of the measure to reduce both kurtosis (−0.37) and skewness (1.20).

Because no researchers have attempted to quantify differences between jock identity and athlete identity, the Athletic Involvement Study generated new measures to assess respondents' perceptions of the strength of their own sport-related identities. Participants were asked how much they agreed with a series of self-evaluative statements, with 5-point responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Jock identity was assessed with 2 statements: "I tend to see myself as a jock" and "Other people tend to see me as a jock" ($\alpha = .94$). I combined responses for these 2 statements to create a mean score for overall jock identity. (I included in the questionnaire a parallel set of questions asking respondents to rate their own perceived athlete identity, but I did not use it in the present analysis.)

Participants also completed portions of Mahalik's Conformity to Masculine Norms Inventory (CMNI).[27] These inventories required participants to evaluate a series of statements in the

context of their own actions, feelings, and beliefs, with a 4-point response scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). I reverse-coded individual items as necessary so that higher response values corresponded to stronger endorsement of conventional masculine gender norms. I calculated Cronbach α, an index of reliability to test how well the components measure the same construct, for each subscale.

I used 5 CMNI subscales: Playboy, Winning, Dominance, Risk Taking, and Violence. The 12-item Playboy subscale (α= .88) included items such as "If I could, I would frequently change sexual partners" and "Emotional involvement should be avoided when having sex." Ten items such as "In general, I will do anything to win" and "The best feeling in the world comes from winning" made up the Winning subscale (α= .81). The Dominance subscale (α= .69) included 4 items such as "I make sure people do as I say" and "I should be in charge." The 10-item Risk Taking subscale (α= .84) included items such as "Taking dangerous risks helps me to prove myself" and "I frequently put myself in risky situations." Last, the 8-item Violence subscale (α= .81) included items such as "Sometimes violent action is necessary" and "I like fighting." I constructed a global Masculine Norms scale (α= .67) by calculating the mean across all 5 CMNI subscales.

I also constructed new measures to measure actual risk-taking behavior. Participants indicated whether they had engaged in a series of activities in the past 12 months, such as "done something dangerous on a dare (like taking a risk or breaking a law) that you would not have done otherwise," "participated in an 'extreme' sport (like snowboarding or bungee jumping)," "been in a serious physical fight," or "had unprotected sexual intercourse (without using a condom)." Responses were dichotomous (*no* = 0, *yes* = 1). The alpha reliability coefficient for the 10-item Risk-Taking Behavior scale was .57.

I collected demographic data on sex (male = 0, female = 1), age, race, and ethnicity. To measure race, students selected the category that best described them from a list of options including (1) American Indian/Native American, (2) Asian American/Pacific Islander, (3) black/African American, (4) white/Caucasian, (5) mixed race, or (6) other. After preliminary analysis, I collapsed responses into a dichotomous measure (0 = white, 1 = nonwhite) to generate large enough cell sizes for optimal hypothesis testing. In a separate question on ethnicity, respondents indicated whether they were of Hispanic or Latino descent.

I used 2 additional measures—parental education and college grade point average (GPA)—to control for social class and academic performance. I included parental educational achievement as a proxy for social class. Students identified each parent's highest level of education from among 5 options: *did not finish high school* (coded as 10 years), *high school degree or GED* (12 years), *some college or technical certification* (14 years), *bachelor's degree* (16 years), and *postgraduate or professional degree* (eg, MA, MBA, PhD, MD; 18 years). I coded parental educational achievement as the higher available response if maternal and paternal education levels differed or if the respondent provided data for only 1 parent. I recoded cases where neither parent's educational history was available (n = 14) to the sample mean of 15.37 years. College GPA was self-reported, and I recoded missing cases (n = 11) to the sample mean of 2.95.

Analysis

I performed several analyses to assess gender-specific relationships among jock identity, masculine norms, risk taking, and energy drink and energy mixed drink consumption. First, I calculated bivariate correlations for each variable pair (see Table 1). These calculations revealed that gender, strength of jock identity, conformity to masculine norms, and risk-taking behavior were significantly correlated with both of the outcome variables in question. Thus, I performed F tests on unadjusted mean scores for jock identity, masculine norms, risk-taking

behavior, and energy drink/energy mixed drink consumption frequencies. I used this method to make 4 sets of comparisons. I compared women with men, respondents high on jock identity (score of 3.5 or higher, on a scale of 1 to 5) with those low on jock identity (score of 3.0 or lower), respondents high on conformity to masculine norms (score of 2.5 or higher, on a scale of 1 to 4) with those low on conformity to masculine norms (score below 2.5), and respondents high on risk-taking behavior (reported taking 3 or more risks in the past year) with those low on risk-taking (took fewer than 3 risks).

Next, I performed linear regressions of energy-drink and mixed-drink consumption frequencies on sociodemographic characteristics, jock identity, masculine norms, and risk-taking behavior for the sample as a whole. In separate analyses, I regressed masculine norms and risk behavior scores separately on jock identity to test for mediation effects, the significance of which I assessed through post hoc application of the Sobel test.[28,29] Last, because of the strong and consistent gender differences in scores for all the conceptually relevant constructs—jock identity, masculine norms, risk-taking behavior, and consumption of both energy drinks and energy mixed drinks—I included product terms in the main analyses to identify any gender-specific interactions in the relationships among these variables.

RESULTS

Table 2 presents overall descriptive statistics for the Athletic Involvement Study sample, as well as mean comparisons by gender, jock identity, conformity to masculine norms, and past-year risk taking. Of the 795 undergraduate respondents, 48% were female, 34% were nonwhite (African American, Asian/Pacific Islander, Native American, or other race), and 8% were of Hispanic descent. The mean level of highest parental educational achievement was 15.37 years, indicating at least some college experience. Of the 6 sociodemographic measures I analyzed, only self-reported college GPA differed significantly by gender, with women reporting a higher mean GPA ($M = 3.06$, $SD = 0.50$) than men ($M = 2.86$, $SD = 0.55$; $F[1,794] = 27.31$, $p < .001$). However, men's scores exceeded those of their female peers on strength of jock identity ($M = 2.30$, $SD = 1.15$ and $M = 1.66$, $SD = 0.91$, respectively; $F[1, 790] = 73.61$, $p < .001$), conformity to masculine norms ($M = 2.52$, $SD = 0.30$ and $M = 2.19$, $SD = 0.27$, respectively; $F[1,794] = 256.92$, $p < .001$), and risk-taking behavior ($M = 2.67$, $SD = 1.81$ and $M = 1.82$, $SD = 1.41$, respectively; $F[1, 794] = 53.10$, $p < .001$).

Thirty-nine percent of respondents reported drinking at least 1 energy drink in the past 30 days, although more than half did so only on 1 or 2 days of the month. Combining energy drinks and alcohol was less common; 26% reported consuming energy mixed drinks at least once, and about half of those did so more than once or twice. Men reported considerably more frequent consumption of energy drinks than did women ($M = 2.49$ days, $SD = 4.87$ and $M = 1.22$ days, $SD = 3.24$, respectively; $F[1, 790] = 18.13$, $p < .001$) and more frequent mixing of energy drinks with alcohol in the past month ($M = 1.73$ days, $SD = 4.40$ and $M = 0.97$ days, $SD = 3.01$, respectively; $F[1, 791] = 7.86$, $p < .01$).

As expected, jock identity was significantly correlated with conformity to masculine norms ($r = .35$, $p < .001$) and risk-taking behavior ($r = .21$, $p < .001$), which were significantly correlated with each other ($r = .41$, $p < .001$; see Table 1). Thus, it is not surprising that high and low scorers on each of these variables showed similar patterns with respect to sociodemographic characteristics and energy-drink consumption. For example, compared with low scorers, high scorers were more likely to be male, be white (significant for risk-taking behavior only), and report lower GPA (significant for masculine norms and risk-taking behavior only). High scorers also reported greater likelihood and frequency of consuming both energy drinks and energy mixed drinks in the past month.

To disaggregate the collective effects of jock identity, conformity to masculine norms, and risk-taking behavior, I performed a series of linear regressions of energy-drink consumption (see Table 3). Controlling for gender, age, race, ethnicity, parental educational achievement, and college GPA, each of the 3 predictors was positively associated with energy-drink consumption frequency when I entered them as separate equations. Parallel regression analyses showed that jock identity, conformity to masculine norms, and risk-taking behavior positively predicted energy mixed drink consumption frequency (see Table 4).

I hypothesized that both conformity to masculine norms and risk-taking behavior would mediate the relationship between jock identity and the frequency of energy-drink and energy mixed-drink consumption. To demonstrate mediation, it is necessary to satisfy 4 conditions: (1) the independent variable (IV) significantly predicts the dependent variable (DV), (2) the proposed mediator (M) significantly predicts the DV, (3) the DV–IV association is significantly reduced when M is added to the equation, and (4) the IV significantly predicts M.[30] Table 3 and Table 4 show that the first 3 of these conditions were satisfied. All 3 predictor variables were positively associated with both kinds of drink consumption. The effect of jock identity on energy drink consumption disappeared altogether, indicating full mediation, when I added to the equation either conformity to masculine norms or risk-taking behavior (see Table 3). Conformity to masculine norms fully mediated the link between jock identity and energy mixed-drink consumption, whereas risk-taking behavior partially mediated it (see Table 4). To satisfy the fourth condition, I also had to demonstrate that jock identity directly predicted masculine norms and risk taking. Table 5 presents results of analyses regressing masculine norms endorsement and risk taking on jock identity. Both relationships were significant.

Next, I performed the Sobel test[28,29] on each of the 4 mediation effects to test that the addition of the mediator to the equation had a significant effect on the relationship between the IVs and DVs. All 4 tests were significant, confirming that conformity to masculine norms fully mediated the relationships between jock identity and energy drink consumption ($z = 3.00$, $p < .01$) and energy mixed-drink consumption ($z = 4.52$, $p < .001$) and that risk-taking behavior fully mediated the relationship between jock identity and energy drink consumption ($z = 3.29$, $p < .001$) and partially mediated the relationship between jock identity and energy mixed drink consumption ($z = 3.71$, $p < .001$).

Several additional findings of interest emerged from the regression analyses presented in Table 3 and Table 4. Male gender was significantly associated with elevated consumption of energy drinks but not with alcoholic energy drinks. Age, parental education, and college GPA all failed to be predictive of energy drink consumption, with or without alcohol. However, Hispanic students reported using energy drinks more frequently than did non-Hispanic students, and non-white students consumed energy mixed drinks less frequently than did white students (see Table 3 and Table 4), and neither relationship was mediated by jock identity, masculine norms, or risk taking.

I conducted exploratory analyses separately for men and women to identify possible sex differences in the relationships among jock identity, masculine norms, risk taking, and energy drink/energy mixed-drink consumption frequency (data not shown). Most notably, these analyses showed that among women, neither jock identity nor conformity to masculine norms was predictive of energy drink consumption. However, subsequent whole-sample analyses that included product terms to test for gender differences yielded no significant interactions. Thus, this finding must be considered at best suggestive, rather than conclusive.

COMMENT

Of the 3 hypotheses I proposed, the findings confirmed 2. Strength of jock identity was positively associated with consumption frequencies for both energy drinks and energy mixed drinks (H1). Conformity to masculine norms and risk-taking behavior both mediated the links between jock identity and energy-drink consumption and energy mixed drink consumption (H2). H3—that the strength of jock identity better predicts drinking by men than by women—was not supported in tests for significant gender interaction effects; however, separate gender-specific analyses linking jock identity to drinking outcomes for men but not for women suggested that more nuanced explorations of these relationships may prove fruitful in future analyses. Any profile of the typical energy-drink consumer must include male gender.

The larger research question of interest in this analysis was whether energy drink consumption is consistent with the emergent portrait of a toxic jock identity (K.E. Miller, PhD, unpublished data, April 2006).[1,2] A more definitive answer to that question must await future analyses of the links between energy drink consumption and the range of health-risk behaviors for which self-reported jocks are at elevated risk, such as problem drinking, unsafe sex, or interpersonal violence. To the extent that jock identity—unlike the alternative athlete identity—is indelibly imprinted with hegemonic masculinity, I found tentative support for the thesis.

The findings with respect to racial and ethnic differences in energy drink and mixed drink consumption warrant further investigation. Because it is well-established that African American adolescent and young adult substance use rates are markedly lower than those of their white counterparts,[31,32] it is not surprising that nonwhite students in this study reported less consumption of energy drinks mixed with alcohol than did white students. The elevated consumption of nonalcoholic energy drinks by Hispanic college students has no such obvious explanation, however. In fact, the imagery with which energy drinks are typically marketed—emphasizing extreme sports and risk taking—seems unlikely to net a disproportionately Hispanic consumer base. As an overall demographic, Hispanic students report somewhat lower rates of athletic participation[33,34] and are less inclined toward sensation seeking or risk taking than are non-Hispanic students.[35] I likewise found that jock identity, masculine norms conformity, and risk taking did not mediate the relationship between ethnicity and energy-drink consumption. The nature of the appeal of energy drinks to Hispanic youths provides fertile ground for future investigations.

Although my findings shed some much-needed light on the antecedents of a growing trend in young-adult substance use, several caveats must be considered when interpreting the findings. Participants were representative of undergraduate college students at a large Northeastern public university only; as such, results cannot be generalized to young adults as a whole. The data were also cross-sectional, ruling out any conclusions regarding the causal direction of the relationships in question. Longitudinal studies are needed to assess whether the apparent impact of jock identity on energy-drink consumption is causal or merely a selection effect. Moreover, the measure of jock identity was self-referential only; although respondents reported how they believed others perceived them, no actual peer confirmation was possible. Three scale measures—the CMNI Dominance subscale ($\alpha = .69$), the global Masculine Norms scale ($\alpha = .67$), and the Risk-Taking Behavior scale ($\alpha = .57$)—fell short of the conventional .70 for acceptable alpha reliability. Last, the measures available in this study do not provide context for the consumption of energy drinks or energy mixed drinks beyond past-month frequency. Researchers might profitably explore young adults' motivations for using these substances, as well as the settings in which use occurs.

It may seem odd that the consumption of energy drinks, which are not designed to meet the rehydration needs of athletes and may in fact be deleterious for athletic purposes, should be

associated with a sport-related identity. It is important to remember that the toxic jock identity may have less to do with sports per se than with hegemonic masculinity and its component elements, such as risk taking, violence, dominance, and sexual opportunism. Although high-profile sports promote and reinforce hegemonic masculinity in contemporary US culture, they are arguably, for the toxic jock, a venue for transmission of a system of attitudes and behaviors, rather than an end in themselves.

In recent years, there has been a global upsurge in concern over the potentially negative health effects of energy drinks. An inquiry into the 2000 death of an 18-year-old Irish basketball player from a cardiac disrhythmia after heavy energy drink consumption led that nation's Food Safety Promotion Board[7] to impanel a Stimulant Drinks Committee to review existing evidence regarding these substances. The Swedish National Food Administration conducted an investigation when 2 Swedish youths died in 2001 after mixing energy drinks with vodka and a third died after consuming several energy drinks following a gym workout.[8] Authorities in France and Denmark have banned Red Bull, Norway sells it only in pharmacies because of its high caffeine level, and numerous other countries require energy drinks to carry health-warning labels.[3]

Because energy drinks are not regulated products in the United States, researchers have not generally viewed them through the lens of substance use. However, the mechanisms by which they are marketed (eg, extreme sport sponsorships, mass distribution of free samples at college parties, the use of college student brand managers)[9,10,36,37] are similar to those used to sell tobacco and alcohol to youths.[38,39] Several energy-drink manufacturers even explicitly encourage consumers to draw parallels between their products and illicit substances, with brand names such as Bong Water or Cocaine.[40,41] Moreover, the purposes for which they are often used (eg, masking the depressant effects of intoxication) [3,18] suggest that energy drinks bear similarities to illicit stimulants. As such, researchers must examine who uses these products and their motivations for doing so, as well as the antecedents and implications of such use.

The rapid expansion of the energy-drink phenomenon invites closer attention than it has received to date. My findings place this growing trend in the context of the larger constellation of athletics, hypermasculinity, and risk taking that composes a toxic jock identity, which may in turn signal an elevated risk for health-compromising behaviors. College undergraduates' frequent consumption of energy drinks should be recognized as a potential predictor of toxic jock identity. Identification of heavy consumers could be a first-line screening mechanism for targeting at-risk students, particularly those in athletic programs, who might benefit from more direct intervention efforts.

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TABLE 1

Bivariate Correlations Among Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Female	—										
2. Age	−.04	—									
3. Nonwhite	−.03	.06	—								
4. Hispanic	−.05	−.02	.21*	—							
5. Parental education	−.03	−.08***	−.21*	−.06	—						
6. College GPA	.18*	−.05	−.17*	−.07***	.07	—					
7. Jock identity	−.29*	.01	−.03	.03	.04	−.05	—				
8. Masculine norms	−.50*	.01	−.02	−.05	.04	−.18*	.35*	—			
9. Risk taking	−.25*	−.04	−.13*	−.04	.04	−.13**	.21*	.41*	—		
10. Energy drink frequency	−.15*	−.03	−.01	.10**	.05	−.05	.11**	.17*	.21*	—	
11. Energy mixed drink frequency	−.10**	.01	−.06	.06	−.09***	−.06	.12**	.20*	.27*	.58*	—

Note. GPA = grade point average.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 2

Unadjusted Mean Comparisons by Sex, Jock Identity, Masculine Norms, and Risk Taking

		Sex		Jock identity		Masculine norms		Risk-taking	
Variable	**Total**	**Male**	**Female**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Sex (1 = female)	.48	—	—	.51	.21*	.63	.15*	.57	.33*
Age (y)	20.02	20.09	19.94	20.01	20.01	20.06	19.96	20.04	19.99
Race (1 = nonwhite)	.34	.35	.33	.35	.30	.36	.30	.38	.27**
Ethnicity (1 = Hispanic)	.08	.06	.09	.08	.07	.09	.06	.08	.07
Parental education (y)	15.37	15.43	15.30	15.38	15.46	13.31	15.51	15.27	15.53
College GPA (1.00–4.00)	2.95	2.86	3.06*	2.96	2.90	3.01	2.85*	3.00	2.87**
Jock identity (1–5)	1.99	2.30	1.66*	—	—	1.77	2.46*	1.83	2.25*
Masculine norms (1–4)	2.36	2.52	2.19*	2.33	2.58*	—	—	2.27	2.52*
Risk taking (0–10)	2.27	2.67	1.82*	2.13	3.09*	1.82	3.19*	—	—
Frequency energy drink	1.88	2.49	1.22*	1.73	2.92**	1.52	2.58**	1.38	2.67*
Any energy drink	.39	.46	.31*	.37	.52**	.33	.52*	.33	.49*
Frequency energy mixed drink	1.37	1.73	.97**	1.21	2.32*	.92	2.32*	.80	2.27*
Any energy mixed drink	.26	.29	.23***	.24	.40*	.19	.41*	.18	.39*

Note. GPA = grade point average.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 3

Linear Regressions (β) of Energy Drink Consumption on Jock Identity, Masculine Norms, and Risk Taking

Variable	Model 1: Jock Identity	Model 2: Masculine Norms	Model 3: Risk Taking	Model 4: Jock Identity + Masculine Norms	Model 5: Jock Identity + Risk Taking
Sex	−.14***	−.10*	−.13**	−.09*	−.11**
Age	−.03	−.02	−.02	−.02	−.02
Race	−.04	−.04	−.02	−.04	−.02
Ethnicity	.10**	.11**	.10**	.10**	.10**
Parental education	.02	.03	.03	.02	.02
College GPA	−.02	−.01	< −.001	−.01	−.01
Jock identity	.08*	—	—	.05	.05
Masculinity	—	.15***	—	.14**	—
Risk taking	—	—	.19***	—	.19***
R^2	.05	.06	.08	.06	.08
F	5.33	6.84	9.09	6.06	8.11
SE	1.22	1.21	1.20	1.21	1.20
df	7	7	7	8	8

Note. GPA = grade point average.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 4

Linear Regressions (β) of Energy Mixed Drink Consumption on Jock Identity, Masculine Norms, and Risk Taking

Variable	Model 1: Jock Identity	Model 2: Masculine Norms	Model 3: Risk Taking	Model 4: Jock Identity + Masculine Norms	Model 5: Jock Identity + Risk Taking
Sex	−.05	.04	−.01	.05	.01
Age	.01	.01	.02	.01	.02
Race	.14*	−.14*	−.11**	−.13*	−.10**
Ethnicity	.05	.06	.05	.05	.05
Parental education	.05	.05	.06	.05	.05
College GPA	−.04	−.02	−.02	−.02	−.02
Jock identity	.12**	—	—	.07	.08***
Masculinity	—	.26*	—	.24*	—
Risk taking	—	—	.28*	—	.27*
R^2	.05	.08	.11	.09	.11
F	5.42	10.04	13.42	9.07	12.15
SE	1.10	1.08	1.07	1.08	1.06
df	7	7	7	8	8

Note. GPA = grade point average.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 5

Linear Regressions (β) Testing for Mediation Effects

Variable	Model 1: Regressing Masculine Norms on Jock Identity	Model 2: Regressing Risk Taking on Jock Identity
Sex	−.42*	−.19*
Age	−.01	−.06
Race	−.03	−.14*
Ethnicity	−.02	−.01
Parental education	.01	< .001
College GPA	−.10**	−.10**
Jock identity	.22*	.15*
R^2	.30	.11
F	18.62	13.86
SE	1.02	1.04
df	7	7

Note. GPA = grade point average.

* $p < .05$.

** $p < .01$.

*** $p < .001$