

Attitudes Toward Doping and Recreational Drug Use Among French Elite Student-Athletes

**Patrick Peretti-Watel, Valérie Guagliardo, Pierre Verger,
Patrick Mignon, Jacques Pruvost, and Yolande Obadia**

This study examined attitudes toward doping among 458 French elite student-athletes (ESAs) ages 16–24, their correlates, and their relationship with cigarette, alcohol, and cannabis use. We found a consensus among ESAs concerning negative aspects of doping. A cluster analysis showed, however, that statements dealing with benefits of doping were endorsed by two significant minorities of respondents. These ESAs were more frequently older males with a lower parental academic achievement and no sporting history in their family. Recreational drug use depended on whether or not ESAs endorsed statements related to nonsporting benefits of doping. Using an analytical framework from the sociology of deviance, our findings suggest that athletes who dope themselves pursue legitimate goals with illegitimate means but justify their behavior with a legitimate rationale. Further research is needed on the nonrecreational use of recreational drugs.

Cette étude porte sur les attitudes envers le dopage parmi 458 étudiants athlètes d'élite (EAE) français âgés de 16 à 24 ans, leurs corrélats et leurs relations avec le tabagisme et la consommation d'alcool et de cannabis. Nous avons trouvé un consensus chez les EAE au sujet du dopage : ce dernier est jugé malhonnête et dangereux pour la santé et à cause des sanctions. Cependant, les énoncés sur les bénéfices du dopage ont été approuvés par deux minorités significatives de répondants. Ces EAE étaient plus souvent des hommes, plus âgés, avec des parents moins diplômés et une famille sans antécédents sportifs. Parmi eux, l'utilisation de drogue à des fins récréatives dépend de l'accord avec les énoncés concernant les bénéfices non sportifs du dopage. Au sein d'un cadre théorique emprunté à la sociologie de la déviance, nos résultats suggèrent que les athlètes qui se dopent poursuivent des buts légitimes avec des moyens illégitimes, mais qu'ils peuvent justifier leur comportement avec des arguments fondés. D'autres études sont nécessaires sur l'utilisation non récréative de « drogues récréatives ».

Doping: A Deviant but Justifiable Behavior

In *Outsiders* (1963), Becker tries to demystify deviance by demonstrating that delinquents are not so different from law-abiding people, whereas common sense frequently associates a deviant behavior with an alleged antisocial personality (“evil

Peretti-Watel, Guagliardo, Verger, and Obadia are with Regional Center for Disease Control of South-Eastern France (ORS PACA), 23 rue Stanislas Torrents, 13006 Marseille, FR. Mignon is with Laboratory of Sociology of Sport, National Institute for Sport and Physical Education (INSEP), 11 Avenue Tremblay, 75012 Paris, FR. Pruvost is with Regional and Departmental Authority on Youth and Sports of South-Eastern France (DRDJS PACA), 20 avenue de Corinthe, 13006 Marseille, FR.

deeds reveal evil temper”). According to Becker, a deviant act can simply result from the conjunction of opportunity and “neutralization”; many delinquents are still committed to conventional norms, but they are able to neutralize temporarily some of these norms by defining them as inapplicable, irrelevant, or unimportant. Therefore neutralization and the moral career it shapes should be considered a crucial dimension for the analysis of any kind of deviance (Becker, 1970). Becker refers to Sykes and Matza’s seminal article on “techniques of neutralization” (1957). These techniques are “justifications for deviance that are seen as valid by the delinquent but not by the legal system or society at large” (Sykes & Matza, p. 666). Such justifications can follow a deviant act or precede it in order to make it possible, and deviant acts are made easier because values are “*qualified* guides for actions limited in their applicability in terms of time, place, persons, and social circumstances” (Sykes & Matza, p. 666).

This theoretical perspective is especially relevant to the study of doping. Indeed, contemporary societies put a high premium on healthy behaviors (Lupton, 1995), but they also value individual performance and success (Ehrenberg, 1991; Giddens, 1991). These values can be conflicting: Some athletes dope themselves in order to improve their performance, and in doing so they temporarily suspend their loyalty to the “get healthy” imperative. Therefore, these athletes are “innovators” (they accept societal goals but they use illegitimate means to achieve them; Merton, 1957), and doping can be considered a “positive deviance” (Coakley, 2001; Ewald & Jiobu, 1985) that can be sustained by techniques of neutralization. For example, in a qualitative study focusing on vocabularies of motive for illicit steroid use among bodybuilders, Monaghan (2002) found that these people justified their behavior with various types of accounts, including two techniques of neutralization already described by Sykes and Matza (1957; condemnation of condemners and denial of injury), but also, more frequently, with self-fulfillment accounts (i.e., steroids are an adequate means to a desirable end; see Scott & Lyman, 1968; Weinstein, 1980).

Doping: An Infrequent but Widespread Behavior

During the last decades, the concern about doping has grown appreciably in developed countries, and the use of drugs to enhance sporting performance is no longer considered a problem restricted to a handful of athletes competing for Olympic gold. Many studies have been carried out in Western countries in order to assess the prevalence of the use of doping agents among the general adolescent population. For anabolic-androgenic steroids, surveys conducted in North America among high school students found lifetime prevalence rates ranging from 4% to 12% among males, and from 0% to 2% for females (Adlaf & Smart, 1992; Bahrke et al., 1998), and similar surveys carried out in European countries (the United Kingdom, Sweden, and Norway) found lower prevalence rates (Kindlundh, Isacson, Berglund & Nyberg, 1998; Pedersen & Wichström, 2001; Williamson, 1993). In France, Beck, Legleye, and Peretti-Watel (2002) analyzed a survey based on a national sample of 12,512 adolescents age 18 and found a lifetime prevalence of 1.8% for stimulants (used to enhance sporting performances), 0.3% for corticoids, and 0.5% for steroids.

These prevalence rates are quite low, but the fact that even adolescents who were not involved in competitive sport could use doping agents helped broaden thinking on this topic. First, several studies showed that enhancing performance in

sports is not the only reason to take doping drugs—such drugs could be used to improve physical appearance, especially for enhancing masculinity through muscle gain (Kindlundh et al., 1998; Wright & Cowart, 1990; Yesalis, Streit, Vicary, Friedl, Brannon, & Buckley, 1989), or even for improving self-confidence (Schwerin & Corcoran, 1996). Such findings are meaningful within the interpretative framework proposed by Giddens (1991): today, everybody is exhorted to manage his or her own “reflexive project,” and in this perpetual quest for personal achievement the body itself becomes reflexively mobilized, constructed, and tightly controlled.

A second issue that is closely connected with the first one deals with the relationship between use of doping agents and use of so-called recreational drugs (cigarettes, alcohol, cannabis, and other illegal drugs). Because most doping agents do not provide euphoria or hallucinations, and because the appetite for them has been produced by the contemporary fixation on performance and appearance, one could expect that people using such substances would be less likely to take recreational drugs that are unhealthy and might be prejudicial to sporting performance (Pedersen & Wichström, 2001). Several surveys concluded, however, that the use of doping agents and the use of recreational drugs (from alcohol to injectable drugs) were positively correlated (Adlaf & Smart, 1992; DuRant, Escobedo, & Heath, 1995; DuRant, Middleman, Faulkner, Emans, & Woods, 1995; Kindlundh, Isacson, Berglund, & Nyberg, 1999; Scott, Wagner, & Barlow, 1996). Pedersen and Wichström proposed a more qualified conclusion, because they found a positive link for amphetamines, ecstasy, and heroin but a negative one for cannabis.

Hypotheses of the Present Study

In the present study, we aimed to investigate attitudes toward doping and their correlates, as well as the relationship between these attitudes and recreational drug use, among a sample of young French elite student-athletes (ESAs). The word *attitude* must be understood here in its broadest meaning, including evaluative, cognitive, and conative components. One could argue that we assessed beliefs rather than attitudes because we used questions that are not strictly evaluative (Fishbein, 1967), but these beliefs have a strong evaluative aspect, so we labeled them attitudes. For example, ESAs were asked whether doping is dishonest (we assumed that they valued honesty) or whether doping is a means to enhance performance (again, we assumed that they put a high premium on performance).

Our first hypothesis is related to the distribution of these attitudes among ESAs. We assumed that the techniques of neutralization that allow people to manage the moral stigma attached to doping were largely available among athletes, so a significant number of ESAs (even if they never doped themselves) should underestimate the adverse consequences of doping and underscore its benefits.

The second hypothesis is related to the correlates of attitudes expressed toward doping. We expected that prodoping attitudes would be prevalent among ESAs who were likely to dope themselves. We assumed that the following categories of participants were likely to use doping agents: ESAs who were more involved in sporting practice, because from Becker's (1963) perspective a stronger involvement means a deeper socialization that implies learning techniques of neutralization and opportunities to get performance-enhancing drugs; ESAs with a low socioeconomic status and low expectations regarding school, because, according to Merton's strain theory (1957), such people have restricted access to the

legitimate means to attain societal goals; and ESAs without a sporting history in their family, because the medicalization and the deamateurization of sport is quite recent (Waddington, 2000) and ESAs with a sporting history in their family might have inherited a less prodoping sporting culture. Of course, concerning the latter category, one could argue that such ESAs are probably more involved in sport, but the effect of sporting history can be assessed by controlling for such involvement.

The third hypothesis binds attitudes toward doping to recreational drug use. In Monaghan's study (2002), bodybuilders justified illicit steroid use with self-fulfillment accounts that often implied scapegoating recreational drug users; thus we expected that ESAs who expressed prodoping attitudes were less likely to use tobacco, alcohol, or cannabis. Finally, in addition to variables corresponding to these three hypotheses, we introduced age and gender in our analysis as basic confounding factors that needed to be controlled for.

Methods

Participants and Sample

We focused on a very specific population of adolescents and young adults that is characterized by strong involvement in sport. In partnership with sports federations, the French Ministry of Youth and Sports annually draws up three lists of the best young French athletes. The first list includes athletes who have already achieved significant performances in international competitions (high-level athletes), the second one includes athletes with promising performances (promising athletes), and the third aims to supply high-level and promising athletes with valuable training partners. Athletes identified in these three lists are nominated to enter public training centers in order to become ESAs. Such centers organize ESAs' training programs, adjust school timetables, and provide ESAs with a specialized medical program. ESAs are likely to feel concern about the doping issue because most of them plan to become professional athletes, and they share a homogeneous sporting background. This homogeneity is valuable because previous studies of sporting activity in adolescence sometimes resulted in inconsistencies as a result of using mixed heterogeneous populations (Thorlindsson, 1989).

The data analyzed in this study were abstracted from the Survey on Elite Provençal Student-Athletes (SEPSA) conducted by the Regional Center for Disease Control of South-Eastern France (ORS-PACA), in partnership with the Regional and Departmental Authority on Youth and Sports (DRDJS) and the Sport and Physical Education National Institute (INSEP). The SEPSA survey targeted ESAs age 16–24 who were registered in sporting public centers located in south-eastern France, the region where the third highest number of centers is located, with 45 centers (and about 1,000 ESAs). Five centers were excluded from the survey because they included ESAs who were out of the age range. The other 40 centers included 616 ESAs in 28 different sports. These ESAs were asked to answer a self-administered questionnaire between February and May 2002, before or after a training session, in the presence of a professional investigator who was responsible for presenting the survey. In order to ensure confidentiality, anonymous questionnaires were directly collected in a box. Among the 616 eligible ESAs, 147 were absent (most of these were on a trip for a competition), 13 refused to participate, and 458 (159 females and 299 males) completed the questionnaire (response rate: 74.4%).

Measurement Procedures and Variables

The self-administered questionnaire included 127 closed-ended questions dealing with demographic background, health, lifestyle, drug use, sporting activity, and attitudes toward doping. First, ESAs were asked whether or not they agreed with 11 statements related to doping (using a four-point Likert scale, from *strongly agree* to *strongly disagree*). Then we investigated attitudes toward doping rather than the use of doping agents. Even with an anonymous self-administered questionnaire, this remains a very sensitive issue for athletes whose training and schooling are organized by public centers that depend on the Ministry of Youth and Sports. Moreover, from a statistical point of view, because the prevalence of doping is probably quite low in this population, a sophisticated analysis of its correlates would have required a very large sample, but we could not afford it.

In the French school system, students can repeat a level if their marks are too low. Thus, having repeated a grade is a valuable indicator of current and future academic achievement and a good proxy for students' expectations regarding academic success. ESAs were asked whether or not they had already repeated just one grade or at least two grades. Their involvement in sport was assessed by weekly duration of sporting activity (≤ 10 hr, 11–15 hr, or > 15 hr/wk) and competitive level (regional, national, international, Olympic). ESAs' socioeconomic status was evaluated according to their parents' academic achievement. The questionnaire also included items about sporting history in the family (parents practicing at competitive level, high-level athletes in the family).

Finally, three kinds of drug use were targeted in the questionnaire: daily smoking (smoking at least one cigarette per day), occasional use of cannabis (to have smoked cannabis at least once during the last 12 months), and heavy drinking. The last variable is a composite indicator mixing recent use of alcohol and items from the CAGE test, which is a screening test for alcohol misuse (Mayfield, McLeod, & Hall, 1974). Heavy drinking refers to ESAs who drank alcohol regularly (at least 10 times during the last 30 days) or who scored at least 1 on the CAGE test, that is, who responded "yes" to at least one of the four questions of the CAGE test: Have you ever felt the need to cut down on your drinking? Have you ever become annoyed at criticism of your drinking? Have you ever felt guilty about your drinking? Did you ever need a drink first thing in the morning to get going? This indicator is quite unusual, because a potential misuse of alcohol normally corresponds to a CAGE score of at least 2. We used a composite indicator in order to solve a problem of statistical robustness. In our sample of ESAs, there were too few respondents with a CAGE score of at least 2 ($n = 25$) to allow a significant statistical analysis. This composite indicator captures respondents with few episodes of alcohol consumption during the last month but with potential misuse in a more distant past. Thus it should be interpreted cautiously as an indicator of recent regular use or past potential misuse.

Statistical Analysis

First, we described our sample for sporting and nonsporting characteristics, with χ^2 comparing males and females. Then we performed a cluster analysis on the 11 questions related to attitudes toward doping. This statistical tool was useful to emphasize attitudes that were endorsed by the same respondents and to summarize

the variety of their answers in a limited set of contrasted attitudinal profiles. It was thus convenient to detect meaningful patterns of attitudes expressed toward doping.

Items measuring agreement were coded from 1 (*strongly disagree*) to 4 (*strongly agree*) to obtain attitudinal scores. Nonresponses were replaced by mean values, and the resulting variables were transformed to z -score form before clustering. The cluster analysis was based on the usual agglomerative hierarchical procedure (Anderberg, 1973); each observation begins in a cluster by itself, then the two closest clusters are merged to form a new one that replaces the two old clusters, and the merging of the two closest clusters is repeated until only one cluster is left. We used the Euclidean distance and Ward's method (1963) to compute the distance between two clusters. At every step, clusters were less homogeneous, but partitions become more easily interpretable. Usually, analysts select a partition when it contains a reasonable number of clusters that are easily interpretable. We compared partitions with two, three, four, or five clusters, and we opted for the three-cluster solution. From a statistical point of view, this choice seemed appropriate, because the next step of the hierarchical clustering (from three to two clusters) introduced a great loss of homogeneity.

We used an F ratio to compare means of each attitudinal score across clusters and χ^2 to compare clusters according to respondents' background. We also used a logistic model to test the relationship between attitudes toward doping (with the three-cluster partition) and sporting and nonsporting characteristics of ESAs. More precisely, we separately performed two dichotomous logistic regressions (Cluster 1 vs. Cluster 2, Cluster 1 vs. Cluster 3) instead of a discriminant analysis. Indeed, we aimed to identify factors associated with unconventional attitudes toward doping, and, in the present case, Cluster 1 gathered a majority of respondents with conventional attitudes toward doping, whereas Clusters 2 and 3 were smaller and revealed two kinds of unconventional attitudes. Models were built by selecting the more significant factors with the stepwise method (entry threshold $p = .10$), with gender and age forced into all models. Finally, dichotomous logistic models were used to test the relationship between attitudes toward doping and drug use (for daily smoking, occasional use of cannabis, and heavy drinking), with the same selection method.

Results

As shown in Table 1, males and females had very similar characteristics, except for three areas: parents' academic achievement (more males had at least one high school graduate among their parents, $p < .05$), parents' involvement in sports (more females had at least one parent who competes or has competed, $p = .079$), and heavy drinking and occasional use of cannabis, both of which were more common among males. Overall, 2 ESAs out of 3 declared more than 15 hr of sporting practice per week, 1 out of 2 practiced sport at the national level, and 1 out of 3 at international or Olympic level.

Attitudes Toward Doping

Table 2 presents results for the whole sample and for the three-cluster partition. Statements dealing with negative aspects of doping were endorsed by most ESAs.

Table 1 Sociodemographic and Sporting Background and Drug Use (*N* = 458)

	Female (<i>n</i> = 59)	Males (<i>n</i> = 299)	<i>p</i> ^a
Age:			.137
16–17 (<i>n</i> = 212)	52%	43%	
18–19 (<i>n</i> = 127)	26%	29%	
≥20 (<i>n</i> = 119)	22%	28%	
Has already repeated a grade			.215
no (<i>n</i> = 263)	62%	55%	
yes, just one grade (<i>n</i> = 155)	31%	35%	
yes, at least two grades (<i>n</i> = 40)	6%	10%	
Weekly duration of sporting activity			.348
≤10 hr/wk (<i>n</i> = 164)	31%	38%	
11–15 hr/wk (<i>n</i> = 172)	41%	36%	
≥15 hr/wk (<i>n</i> = 122)	28%	26%	
Competitive level			.117
regional (<i>n</i> = 70)	11%	18%	
national (<i>n</i> = 236)	56%	49%	
international, Olympic (<i>n</i> = 152)	33%	33%	
Parents' academic achievement			<.05
no high school graduate (<i>n</i> = 191)	48%	38%	
at least one (<i>n</i> = 267)	52%	62%	
Parents' involvement in sport			.079
no parent (<i>n</i> = 148)	27%	35%	
at least one (<i>n</i> = 310)	73%	65%	
High-level athlete(s) in the family			.760
no one (<i>n</i> = 358)	77%	79%	
at least one (<i>n</i> = 100)	23%	21%	
Drug use			
daily smoking (<i>n</i> = 47)	10%	10%	.918
heavy drinking (<i>n</i> = 88)	25%	8%	<.001
occasional use of cannabis (<i>n</i> = 111)	27%	18%	<.05

Note. Data are from the Survey of Elite Provençal Student-Athletes, conducted in 2002.

^a*p* value for the χ^2 testing independence between gender and each row variable.

Overall, 94% of respondents agreed that doping was a dishonest behavior, 96% agreed that it is an unhealthy behavior, and 95% agreed that it is hazardous because of sanctions. The corresponding attitudinal scores did not vary significantly across clusters. Attitudes concerning advantages provided by doping showed greater variation.

Table 2 Cluster Analysis on Attitudes Toward Doping (N = 458)

	Cluster 1 (n = 230)	Cluster 2 (n = 138)	Cluster 3 (n = 90)	p ^a	Total	Percent
According to you, doping . . .						
is a means to enhance performances.	2.15	3.73	3.55	<.001	2.93	69
is a dishonest behavior.	3.73	3.78	3.61	.205	3.72	94
is a means to train more efficiently.	1.25	2.84	2.69	<.001	2.01	32
is a means to endure the training.	1.51	3.36	2.95	<.001	2.35	47
is an unhealthy behavior.	3.82	3.90	3.73	.091	3.83	96
is hazardous because of sanctions.	3.73	3.73	3.78	.831	3.74	95
is necessary to become a champion.	1.07	1.25	2.41	<.001	1.39	9
is a means to improve recovery.	1.39	3.19	2.84	<.001	2.22	42
is a means to better develop the body.	1.53	3.10	3.00	<.001	2.29	43
is a means to earn money.	1.29	2.18	3.04	<.001	1.90	28
is a means to experience new sensations.	1.23	1.22	2.63	<.001	1.50	13

Note. Data are from the Survey of Elite Provençal Student-Athletes, conducted in 2002. Columns give means for row variables (encoded from 1 = strongly disagree to 4 = strongly agree), except for the last one, which gives the percentage of respondents who answered “strongly agree” or “agree.”^ap value for the F-ratio-test testing differences in means for each row variable across clusters.

Cluster 1 ($n = 230$, 50% of the sample) corresponds to respondents who were less prone than others to agree that doping could provide advantages, because the means of corresponding attitudinal scores were systematically lower in this cluster. For example, concerning the statement that doping is a means to enhance performances, the average score of agreement is 2.15 in this cluster, compared with 3.73 and 3.55 in Clusters 2 and 3, respectively. These respondents also rejected statements related to advantages not directly linked with sporting activity (earning money, experiencing new sensations). Thus they held a very negative attitude toward doping, considering it both dangerous and useless; therefore Cluster 1 was labeled *doping as both dangerous and useless*.

Respondents gathered in Cluster 2 ($n = 138$, 30% of the sample) were characterized by higher levels of agreement with statements related to sporting enhancement provided by doping (for example, concerning statements that doping enhances performances, is a means to endure training, or to improve recovery: 3.73, 3.36, and 3.19, respectively). In contrast, when compared with Cluster 3, these respondents were less likely to agree that doping is necessary to become a champion or that doping is a means to earn money or to experience new sensations. Thus they were more prone to consider doping as a dangerous but efficient adjunct to sporting activity. This cluster was labeled *doping as a dangerous but efficient adjunct to sporting activity*.

Finally, ESAs gathered in Cluster 3 ($n = 90$, 20%) highlighted the efficiency of doping for sporting activity (with slightly lower scores than Cluster 2 but much higher scores than Cluster 1), but they were also more prone to consider doping a necessity to become a champion and a means to earn money or to experience new sensations (with the highest average scores for these items). Such a result suggests that these ESAs considered doping a dangerous but necessary adjunct to sporting achievement and also a useful means to achieve nonsporting goals. This cluster was labeled *doping as a dangerous but necessary adjunct to sporting and nonsporting achievement*.

Factors Associated With Attitudes Toward Doping

Table 3 describes the three-cluster partition, with a systematic comparison between Cluster 1 and each of the two other clusters. Males and ESAs over age 19 were significantly overrepresented in Clusters 2 and 3. When compared with ESAs who held negative attitudes toward doping (Cluster 1), those who considered it a dangerous but efficient adjunct to sporting activity (Cluster 2) were characterized by a higher weekly duration of sporting activity ($p < .05$) and a slightly higher competitive level ($p = .074$), but they were also less likely to have at least one parent involved in sporting competition ($p < .05$). ESAs who were more prone to consider doping a dangerous but necessary adjunct to sporting, as well as a nonsporting achievement (Cluster 3), were more likely to have already repeated at least two grades ($p < .05$) and less likely to have at least one parent graduated from high school ($p = .065$) or to have a high-level athlete in their family ($p < .074$).

The comparison between Cluster 1 and the two other clusters was completed with a multinomial logistic regression (Table 4). After controlling for the effects of gender and age, we found that ESAs who practiced sport more than 15 hr/week were more likely (OR = 1.8) to consider doping a dangerous but efficient adjunct to sporting activity (Cluster 2), but those who had at least one parent involved in

Table 3 Attitudes Toward Doping (Three-Cluster Partition) According to Sociodemographic and Sporting Background (N = 458)

	Cluster 1 (n = 230)	Cluster 2 (n = 138)	Cluster 3 (n = 90)	<i>p</i> ^a 1 vs. 2	<i>p</i> ^b 1 vs. 3
Gender					
female (n = 159)	45%	26%	22%	<.001	<.001
male (n = 299)	55%	74%	78%		
Age					
16–17 (n = 212)	55%	39%	37%		
18–19 (n = 127)	27%	28%	28%	<.01	<.01
≥20 (n = 119)	18%	33%	35%		
Has already repeated a grade					
no (n = 263)	61%	56%	50%	.571	<.05
yes, just one grade (n = 155)	32%	36%	34%		
yes, at least two grades (n = 40)	7%	8%	16%		
Weekly duration of sporting activity					
≤10 hr/wk (n = 164)	38%	33%	35%		
11–15 hr/wk (n = 172)	41%	32%	38%	<.05	.589
≥15 hr/wk (n = 122)	21%	35%	27%		
Competitive level					
regional or national (n = 306)	71%	62%	62%	.074	.115
international, Olympic (n = 152)	29%	38%	38%		
Parents' academic achievement					
no high school graduate (n = 191)	39%	41%	50%	.620	.065
at least one (n = 267)	61%	59%	50%		
Parents' involvement in sport					
no parent (n = 148)	29%	39%	30%	<.05	.878
at least one (n = 310)	71%	61%	70%		
High-level athlete(s) in the family					
no one (n = 358)	75%	79%	84%	.408	.074
at least one (n = 100)	25%	21%	16%		

Note. Data are from the Survey of Elite Provençal Student-Athletes, conducted in 2002; Cluster 1 = doping as both dangerous and useless; Cluster 2 = doping as a dangerous but efficient adjunct to sporting activity; Cluster 3 = doping as a dangerous but necessary adjunct to sporting and nonsporting achievement.

^a*p* value for the χ^2 testing Cluster 1 vs. Cluster 3 for each row variable. ^b*p* value for the χ^2 testing Cluster 1 vs. Cluster 3 for each row variable.

Table 4 Factors Associated With Attitudes Toward Doping (Logistic Regression, *N* = 458)

	Cluster 2 vs. Cluster 1	Cluster 3vs. Cluster 1
Gender		
female (ref.)	-1-	-1-
male	2.3 [1.5; 3.4]	3.0 [1.9; 4.9]
Age		
16–17 (ref.)	-1-	-1-
18–19	1.3 [0.8; 2.2]	1.4 [0.8; 2.4]
≥20	2.2 [1.4; 3.6]	2.7 [1.6; 4.5]
Has already repeated a grade		
no (ref.)	—	—
yes, just one grade	—	—
yes, at least two grades	—	—
Weekly duration of sporting activity		
≤10 hr/wk (ref.)	-1-	—
11–15 hr/wk	1.0 [0.6; 1.5]	—
≥15 hr/wk	1.8 [1.2; 2.8]	—
Competitive level		
regional or national (ref.)	—	—
international, Olympic	—	—
Parents' academic achievement		
no high school graduate (ref.)	—	-1-
at least one	—	0.6 [0.4; 0.9]
Parents' involvement in sport		
no parent (ref.)	-1-	—
at least one	0.7 [0.5; 0.9]	—
High-level athlete(s) in the family		
no one (ref.)	—	-1-
at least one	—	0.6 [0.4; 0.9]

Note. Data are odds ratios (CI 90%) from the Survey of Elite Provençal Student-Athletes, conducted in 2002; Cluster 1 = doping as both dangerous and useless; Cluster 2 = doping as a dangerous but efficient adjunct to sporting activity; Cluster 3 = doping as a dangerous but necessary adjunct to sporting and nonsporting achievement; ref. = reference value (by definition odds ratios are equal to 1 for reference values); — = variable not selected by the stepwise method.

sporting competition were less likely to share these views (OR = 0.7). Once the weekly duration of sporting activity is taken into account, the statistical link between competitive level and being part of Cluster 2 was no longer significant.

When the effects of gender and age are controlled for, ESAs with at least one parent who had graduated from high school, as well as those who had a high-level

athlete in their family, were less likely (OR = 0.6 in both cases) to consider doping a dangerous but necessary adjunct to sporting and nonsporting achievement (Cluster 3). When parents' academic achievement is taken into account, the statistical link between having repeated a grade and being part of Cluster 3 is no longer significant.

Attitudes Toward Doping and Drug Use

Finally, logistic regressions were performed in order to test the relationship between attitudes toward doping and recreational drug use. Age, gender, and the three-cluster partition were entered into three models with the following dependent variables: daily smoking, heavy drinking, and occasional use of cannabis. Table 5 shows that ESAs who considered doping a dangerous but efficient adjunct to sporting activity (Cluster 2) were less likely than other respondents to smoke daily (OR = 0.4), whereas ESAs who considered doping a dangerous but necessary adjunct to sporting and nonsporting achievements (Cluster 3) were more likely than members of Cluster 1 to report heavy drinking or occasional use of cannabis (OR = 2.2 and 1.5, respectively).

Table 5 Attitudes Toward Doping and Recreational Drug Use (Logistic Regression, N = 458)

	Daily smoking (n = 47)	Heavy drinking (n = 88)	Occasional use of cannabis (n = 111)
Gender			
female (ref.)	-1-	-1-	-1-
male	1.1 [0.6; 1.9]	3.2 [1.7; 5.4]	1.7 [1.1; 2.5]
Age			
16–17 (ref.)	-1-	-1-	-1-
18–19	1.2 [0.7; 2.3]	1.5 [0.9; 2.4]	1.2 [0.8; 1.9]
≥20	1.3 [0.7; 2.4]	2.0 [1.2; 3.2]	0.9 [0.5; 1.4]
Opinions toward doping			
Cluster 1 (ref.)	-1-	-1-	-1-
Cluster 2	0.4 [0.2; 0.8]	1.3 [0.8; 2.2]	0.9 [0.6; 1.4]
Cluster 3	1.1 [0.6; 2.0]	2.2 [1.3; 3.7]	1.5 [1.0; 2.3]

Note. Data are odds ratios (CI 90%) from the Survey of Elite Provençal Student-Athletes, conducted in 2002; ref = reference value (by definition, odds ratios are equal to 1 for reference values); Cluster 1 = doping as both dangerous and useless; Cluster 2 = doping as a dangerous but efficient adjunct to sporting activity; Cluster 3 = doping as a dangerous but necessary adjunct to sporting and nonsporting achievement.

Discussion

Our data showed a clear consensus among ESAs concerning negative aspects of doping—more than 9 out of 10 respondents thought that taking doping agents was dishonest, unhealthy, and hazardous because of sanctions. Agreement with these statements was quite similar across the three attitudinal profiles obtained through a cluster analysis. In fact, with a five-cluster partition, we observed a minority of respondents who were less prone to admit the negative aspects of doping. It is interesting to note, however, that the segmentation of attitudes toward doping was first shaped by beliefs toward sporting and nonsporting benefits of doping. Within our three-cluster partition, the first cluster gathered 1 ESA out of 2 who considered doping both dangerous and useless; the second one (30% of respondents) highlighted the efficiency of doping as an adjunct to sporting activity; the third cluster (20% of respondents) considered doping both necessary to sporting achievement and useful to achieve nonsporting goals. Thus two significant minorities of respondents endorsed statements dealing with such benefits. Consequently, our first hypothesis is only partially confirmed; about half of the respondents underscored benefits of doping, but most of them did not underestimate its adverse consequences. Of course, athletes who emphasize benefits of doping do not (or will not in the near future) necessarily dope themselves—in general, social psychologists consider attitudes poor predictors of behavior (Atkinson, Atkinson, Smith, Bem, & Noel-Hoeksema, 1996; Fishbein & Ajzen, 1972; Wicker, 1969). From Becker's (1963) point of view, however, these athletes have fulfilled one prerequisite for doping because they partially deny the norms condemning doping as a dangerous and useless behavior.

Concerning correlates of attitudes toward doping, males were more prone than females to endorse statements related to benefits of doping (a finding that is consistent with the fact that all previous studies on the use of doping agents found higher prevalence rates among males), as well as were older respondents. Because doping can be considered a form of positive deviance among socialized athletes, this result suggests that younger ESAs might be less prone to hold a positive attitude toward doping because their commitment to the sporting world is not yet complete. We also found a significant relationship between being part of Cluster 3 (doping as a dangerous but necessary adjunct to sporting and nonsporting achievement) and poor academic achievement of parents. Because parents' academic achievement is a good proxy for the socioeconomic status inherited by children, this result gives support to analyses claiming that athletes from lower social-class backgrounds are more vulnerable to doping, because they might consider sport their only hope for social achievement and because they have also inherited a *habitus* that defines their own body as an instrument that must be used and worn out to earn their living through hard work (Bourdieu, 1979; Mignon, 2002).

Involvement in sport practice (assessed by the weekly duration of sporting activity) was also significantly linked to Cluster 2 (doping as a dangerous but efficient adjunct to sporting activity), whereas sporting history in the ESA's family was associated with both Cluster 2 (for parents' involvement in sport) and Cluster 3 (having a high-level athlete in one's family). Thus we should qualify the second hypothesis: ESAs who were more involved in sporting practice were more likely to underscore sporting benefits of doping (with no significant effect for the competitive level), whereas ESAs with a lower socioeconomic status were more prone

to highlight both sporting and nonsporting benefits of doping (with no significant effect for school failures).

The third hypothesis needs to be qualified too; the negative relationship between prodoping attitudes and recreational drug use is only valid for ESAs who highlighted sporting benefits of doping rather than nonsporting ones. The cluster analysis helps us better understand the relationship between such attitudes and cigarette, alcohol, and cannabis use. One profile gathered young athletes who held a rather positive attitude toward doping, based on sporting and nonsporting motives—these athletes were also more prone to report heavy drinking and occasional use of cannabis. In contrast, another profile gathered athletes who were more involved in sports, who only highlighted sporting benefits of doping, and who were also less likely to report daily smoking. The latter profile gives an empirical grounding to the hypothesis that some athletes could be both prone to use doping agents and reluctant to use recreational drugs. Monaghan's findings (2002) illustrated this point. Indeed, bodybuilders justified steroid use with "self-fulfillment accounts" by claiming that steroids were a means to an end, in contrast to recreational drugs: "With our drugs, the end justifies the means. Whereas if you're using recreational drugs like coke or H [heroin] or something like that, there's no end to it is there? . . . With steroids it tends to be—it's not a negative drug as such, it's a plus drug. You're trying to do something constructive. You're trying to build a body" (Monaghan, p. 699).

Self-fulfillment accounts are very interesting for two reasons. First, they help to elucidate why previous studies found only a low correlation between knowledge about the unhealthy effects of doping agents and attitudes toward their use (Anshel & Russel, 1997). Athletes usually know that high-level sports are not always good for health, but they can easily justify doping because they are ready to make sacrifices to achieve their sporting goals (Ewald & Jiobu, 1985; Johns, 1997). Thus, when athletes who are considering doping engage in a cost-benefit analysis, they know possible adverse consequences, as well as potential benefits, and they weigh the pros and cons of doping before making their decision. Our results cannot confirm this hypothesis, because we had no information about ESAs' use of doping agents, but the results suggest that young athletes already have in mind the two aspects of this cost-benefit analysis. Therefore, doping-prevention campaigns should not be restricted to spreading information about the adverse effects of doping but should also address the other aspect of this issue, namely benefits of doping.

Second, self-fulfillment accounts are a "peculiarly modern type of justification" (Scott & Lyman, 1968, p. 52). Indeed, they derive their legitimacy from instrumental rationality—doping is an appropriate means to meet a desirable end, that is, to achieve a personal goal, contrary to recreational drug use, which is described as nonconstructive. Such a rationale is highly congruent with modern values that put a high premium on self-fulfillment (Giddens, 1991) and instrumental activism (Campbell, 1996; Parsons, 1965). Describing doping as the result of a cost-benefit analysis is another constructive rationale that is also coherent with such values. Thus, if we combine Merton's (1957) and Sykes and Matza's (1957) points of view, athletes who dope themselves pursue legitimate goals with illegitimate means, but they are able to justify their behavior with a legitimate rationale.

Of course, in a society characterized by the generalized medicalization of sport and nonsporting activities (Ehrenberg, 1991; Waddington, 2000), athletes

who are prone to use both doping agents and recreational drugs could use the latter in a nonrecreational way, as a means to an end—for example, in order to reduce the anxiety induced by sports competition (Peretti-Watel, Beck, & Legleye, 2002). Self-fulfillment accounts, as well as the cost–benefit analysis, have already been observed among users of so-called recreational drugs (Parker & Measham, 1998; Schaps & Sanders, 1970; Weinstein, 1980). Further research is needed to investigate motives for using doping agents and recreational drugs among young athletes, because adequate health promotion needs to be connected to the meanings shaping people’s unhealthy behaviors (Hart & Carter, 2000; Leigh, 1999).

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