FINAL REPORT

Intermediate and high school students' attitudes toward and behavior regarding steroids and sports supplements use: The mediation of clique identity

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by

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INTRODUCTION

Purpose of the Study

Acknowledging the reality that steroid use among adolescents is no longer confined to high school male athletes, this study sought to:

- compare the steroid and sports supplements attitudes and behaviors of intermediate school and high school students on Long Island, New York
- analyze the extent to which steroid attitudes and behaviors are influenced by age, gender and by level of school.
- explore the identity dynamics of steroid and sports supplements attitudes and behaviors among intermediate school and high school students by ascertaining their clique membership and their perceptions of attitudes and values within these cliques.
- compare attitudes toward steroids and sports supplements use and examine the influence of sports supplements use on the potential use of steroids by intermediate and high school students.
- discuss the implications of identity dynamics and sports supplements values and behaviors for peer-based prevention programs focusing on middle school and high school students.

Background and Significance

Based on their detailed review of 1980s and 1990s data, Yesalis and his colleagues (2000) estimated that between 3% and 12% of males, and 0.5% and 2% of females had used steroids at some time. Data cited by the National Drug Intelligence Center from the Monitoring the Future Surveys (MTF) that have been assessing drug use among high school 12th-graders since 1975, and 8th- and 10th-graders since 1991 show relatively low levels of steroid use depending on grade level, gender, and level of sport participation. The data for 2003 show the highest level of steroid use among 12th-grade males (3.2%), compared to their female cohorts (1.1%). These rates were 1.8% and 2.3% among 8th and 10th grade males, and 1.1% for 8th and 10th grade females (www.usdoj.gov/ndic/pubs11/12620/steroids.htm). These percentages rise for males when involvement in sports is considered. For example, in 2002-2003 the use rate among 12th grade males participating in athletics was 5.1% in comparison to 2.2 % for those not participating in any sports. The equivalent figures for 10th-graders were 4.1% and 1.8% (www.childtrendsdatabank.org). The MTF data also show that perceived harmfulness of steroids has declined among 12th-graders from 70.7% in 1992 to 55.7% in 2004. Similarly, disapproval of steroid use by 12-graders peaked at 92.1% in the early 1990s and is current 87.9% (www.usdoj.gov/ndic/pubs11/12620/steroids.htm). These data raise the question whether the use of performance-enhancing drugs is gaining acceptance among adolescents, and what the reasons for this might be. If acceptance is on the increase, the potential success of anti-steroid programs is decreased.

Of great importance is the change in the profile of steroid users that has occurred since the 1980s. Originally conceptualized as a male athlete "problem," steroid use has become a negative side effect of the great increase in female sports participation at the youth and college level. Using anabolic steroids to lose weight and build muscle can become part of the dietary practice of female athletes, the first component of the "female athlete triad" of eating disorders, amenorrhea, and osteoporosis (ACSM, 1997). However, in addition to the drive for athletic success, the cult of thinness has become an obsession among American teenagers, whose self-concepts are often built on unrealistic and unattainable images of strong, slim bodies. Status in female adolescent cliques is based on popularity, and physical appearance is usually essential for membership in popular cliques (Merten, 1996, 1997; Milner, 2004). Use of steroids and other supplements can be part of the female adolescent's "cosmetic" approach to fitness, "health," and beauty (Elliot & Goldberg, 2000). As such it is a potential threat to the health of female adolescents in general, not just female athletes.

If beauty is at the center of the status hierarchy for girls, then athletic ability provides a similar function for boys. Athlete groups are usually at the top of the clique hierarchy in high schools (Foley, 1990; Rees, 1995), and athletic ability in boys is also highly respected in junior high schools (Eder & Kinney, 1995). Athletic activity "defines" masculinity for high status males, and also has a "trickle down" effect on boys who are not athletically gifted (Pascoe, 2003). This means that male adolescents can be tempted to use steroids and other supplements not only to increase their chances of being star athletes, but also to increase their self-esteem if they are not particularly athletic. If muscularity is equated with masculinity, then masculinity is demonstrated by having big muscles (White & Gillett, 1994). Thus, steroid and other sports supplements use by male adolescents is no-longer limited to male athletes.

Involvement with steroids may also be starting earlier for adolescents. In a study of 965 male and female middle school children (ages 9 – 13), 2.7% of them reported using steroids (Faigenbaum et al., 1998). There were no gender differences among the users. However, compared to the non-users, the users thought taking steroids makes one look better (23% compared to 9%), improves athletic ability (31% compared to 11%), thought steroids were bad for them (54% compared to 91%), and indicated that they would take steroids in the future (35% compared to 2%). The issues of athletic ability and cosmetic fitness seem to be at work in the way these children view steroid use (Faigenbaum et al., 1998).

High school groups may also be using other sports supplements, seen as "gateway" drugs for steroid use. Yessalis (cited in Farrey, 2000) has drawn attention to this relationship, and has suggested that steroid use "always starts with supplements." While the relationship between athletics and diet in adolescents has been studied (e.g., Perko, 1999; Dodge, Ford & Perko, 2003; Rainey et al., 1998), it is important to examine this potential steroids/sports supplements connection.

In the face of a potential increase in the breadth and diversity of the at-risk adolescent population (NIDA 2000), steroid use can no longer be explained as a reaction to the win at all costs mentality of elite sports. Elite athletes still take steroids but the problem has spread to adolescent athletes (both male and female) and to non-athletic adolescents (Committee on Sports Medicine and Fitness, 1997; Elliot & Goldberg, 1996). Acknowledging this reality, the proposed study seeks to compare the steroid and sports supplements attitudes and behavior of intermediate and high school children. Many of the intermediate school children will become athletes in the future and, play a leadership role in defining the degree to which steroid and other supplement use in physical activity is accepted or rejected among adolescent groups. The specific focus of the study is to examine the relationship between the clique structure of the adolescents and their acceptance of steroids and other sports supplements.

Literature and Preliminary Studies

Miller and her colleagues (2002) have challenged the assumptions that steroid users are necessarily male and necessarily athletes. They tested the degree to which different sub groups of users (e.g., adolescent male and female athletes and non-athletes) share common reasons for steroid use with a national sample of over 16,000 high school students from the 1997 Youth Risk Behavior Survey. Their findings provided some support of the Problem Behavior Theory (PBT) model (Jessor & Jessor, 1977) in which steroid use can be part of a cluster of delinquent–type behaviors such as binge drinking, risky sex, pathogenic weight control, and other recreational drug use. In this model, adolescents first become involved in less risky behaviors that lead sequentially to more hard-core behaviors and polypharmacy (DuRant et al., 1993; Wichstrom & Pedersen, 2001). The results of Miller's study showed that both male and female steroid users were more likely than non-users to report use of other substances, and other behavior such as pathogenic weight loss, sexual risk taking, and aggression. However, while male athlete and non-athlete users did not differ on "macho" type behaviors such as binge drinking and fighting, the relationship between steroid use and other illicit drugs was stronger for the non-athletes. This finding did not occur in the case of the females. The lack of similar patters between males and females led Miller and her colleagues to identify the need for a clearer understanding of how sports, gender, and steroid use intertwine.

To this end one research strategy might be to adopt an approach advocated in the research on adolescent extracurricular activities (see Guest & Schneider, 2003) and investigate the identity dynamics of attitudes toward the use of steroid and other supplements in adolescent groups. Sociologists interested in sport, arguably the most popular of all extracurricular activities in schools have often pointed out that participation can lead to both positive and negative outcomes (Miracle & Rees, 1994; Rees & Miracle, 2000), depending on the interaction among athletes, and between athletes and adult leaders such as coaches and teachers. For example, in his ethnographic study of Little League baseball teams, Fine (1987) showed how interaction among team members became a rich context for identity development and transmission among the

players. Teams developed what Fine called “ideocultures” which contained different and sometimes opposite definitions of masculinity and competition. Likewise, Eccles and Barber (1999) showed how activity-based identity was an important aspect of extra curricular participation. They demonstrated what they called “synergistic influences” among identity, friendship networks, and activity involvement with the 10th and 12th grade students who they studied. Students chose to associate themselves with one of five identity types (i.e., the princess, the jock, the brain, the basket case, and the criminal). This choice was related the number of friends that they felt were also part of these cliques, and also their risky behavior such as alcohol consumption.

We feel that clique identity is a potentially valuable concept in explaining adolescent and pre-adolescent steroid and sports supplement-related attitudes and behavior. On a general level it can help to link macro level research findings based on survey research with micro oriented studies of adolescent groups. In the specific case of steroid research it may help to explain why some groups (both athletes and non-athletes) develop ideocultures of steroid acceptance while others do not. For example, research by Kindlundh (1999) and her colleagues showed that some adolescents saw steroid use as one element of exciting recreation activities in their friendship groups. Their reasons for using steroids included “because it’s fun to try,” “to get intoxicated,” and, “to become more brave” (Kindlundh et al., 1999). These responses invoke elements of Rojek’s theory of “risky” or “wild” leisure, the idea that risk activities are exciting in and of themselves as well as promoting high status in groups in which this norm is shared (Rojek, 2000). Examples in sport would include binge drinking, fighting, risky sex, and hazing rituals (Bryshun & Young, 1999; Rees, 2004). Our contention is that the clique membership of respondents will differentiate attitudes towards steroid and other sports supplements use.

An emphasis on activity-based identity shifts the focus away from steroid use as a “problem behavior” labeled as such by group outsiders (e.g., adult educators), towards a research approach that seeks to understand deviant issues from the participants perspective (Blackshaw & Crabbe, 2004). There is no denying that steroid use is a problem, but adult imposed testing procedures may be unrealistic and adolescents are not likely to just “say no to steroids” because adults tell them to. Insider knowledge is necessary to design more effective anti-steroid programs. For example, Miller and her colleagues (2002) conclude that most anti-steroid programs are based on the outdated assumption that users are male athletes. Typically one of the most successful of these programs, ATLAS (Athletic Training and Learning to Avoid Steroids), (Goldberg et al. 1996), is designed with male athletes in mind. A similar focus characterizes steroid education programs for younger adolescents. For example, Trenhaile and his colleagues (1998) tested a program that increased the knowledge of steroids and the anti-steroid attitudes of 9 to 12 year-old male wrestlers.

However, the current realities of adolescent steroid use require us to take a wider approach that might appeal to different adolescent groups. Educators must not only deal with the health issues of steroids, but also the value system (e.g., win-at-all-costs, and cosmetic fitness) surrounding steroid use. This value system would also legitimize

other potentially dangerous performance supplements such as creatine, andro and ephedrine. Experts in anti-steroid education (e.g., Bahrke & Yesalis, 2002; Yesalis et al., 2000) have not been optimistic about changing these values given the social pressures diluting the anti-steroid message. In contrast to the usual adult administered anti-steroid education programs, Elliot and Goldberg (1996) advocate a peer-led, small group format as an effective approach. For example the SALT (Student Athlete Leadership Team) program at Adelphi University could play an important part in anti-steroid education on Long Island. Here, the Student Athlete leaders counsel groups of fifth and sixth graders including both athletes and non-athletes. These leaders are high school students who have achieved a positive balance between academic and athletics and whose social values are intact. For example, in a study of their sportspersonship values, Rees (2002) found that, "not taking steroids," received a mean value of 1.17 on a four point fair play scale (the lower the score the higher the importance for sportspersonship). This was second only in importance to "play hard and do your best" (*M* = 1.06), in the ranking of 13 fair play statements.

In summary, our conceptual framework (that steroid issues are now salient to a wider group of adolescents than was previously recognized), and our theoretical focus (on the importance of clique values on adolescents' steroid attitudes and values), make this study innovative. Finally, the findings of our research may have important implications for the future of anti-steroid education.

METHODOLOGY

Research Design and Procedures

The conceptual framework of this project is based upon the evidence (Miller et al, 2002) that the steroid use among adolescents is becoming more varied in terms of age, gender and motives. Originally seen as a male high school athlete "problem," steroid use may now be "normalized" within the cosmetic fitness approach to exercise, part of the quest by adolescents for the "perfect body." This framework suggests new ways to theorize adolescent steroid use, moving from a perception that it is a "male athlete problem" towards a broader understanding of the role it plays in adolescent cliques that stress the importance of the body. Miller et al. (2002) suggest that patterns of problem behaviors associated with adolescent steroid use differ by athletic status and/or gender, so this study will assess the importance of gender and athletic status in steroid related behavior and attitudes of Long Island middle and high school children. It will also examine whether there is a relationship between attitudes towards steroids and other supplements in these groups.

However Miller et al. also suggest that "The key to these [athletic status and gender] differences may well be rooted in the gendered and subculturally specific social contexts in which adolescents make decisions regarding ergogenic substance use." (Miller et al., 2002, p. 473), and suggest (p. 474) that non-athletes who take steroids are less embedded in socially approved friendship networks or sanctioned structured

activities. Following this approach, we examine the importance clique structures in adolescents' steroid involvement.

Based on his detailed study of the dimensions of status in American high schools, Milner (2004, p. 43) suggests that most high schools are organized into sets of cliques, and most students are associated with one of these particular identities. Like most stratification systems the top and bottom are more clearly defined than the center, and the boundaries may also be fuzzy. Although the details of the groups may vary by school, the basic hierarchical structure is common to most schools. Furthermore, clique membership, or even the perception of membership, can have profound and long-lasting effects upon adolescents' behavior and self-esteem (Brown, 1993; Merton, 1996; Milner, 2004). In particular clique membership puts constraints on how students act in social situations, and provides validation for acts that could be sanctioned by non-group members (Foley, 1990; Merton, 1996; Rees, 1995). In this study we are interested in the degree to which clique membership is related to knowledge of and attitude towards steroid use.

Clique structures described in research on schools have varied in detail. For example, Eckert (1989) labeled "jocks" and "burnouts" as the major cliques in the schools she studied. In the junior high school he studied, Merton (1996) identified "preppies," (this group included males and females students active in pursuit of social, athletic, and academic goals sanctioned by the school), "burnouts," (students who represented the opposite values to the preppies and were defined primarily by their involvement with alcohol, drugs, and sexual activity), and "nerds", (students not physically attractive and with no social graces). Other studies on the importance of sport in the social life of the school (e.g., Canaan, 1987; Rees, 1995) have identified "jocks" as an important subset of preppies. In their study of extracurricular activities Eccles & Barber (1999) asked students to choose among five identities; "the princess," "the jock," "the brain," "the basket case," and "the criminal." For this study we have adapted these categories, and ask respondents to identify one of the following groups with which they hang out with the most - "preppies," "jocks", "regulars", "brains", "nerds/geeks", "burnouts", "gangsters/hoods," "alternatives," "others". Following Eccles and Barber (1999) we also ask participants to identify what proportion of your friends are each of the following? - "are concerned about how they look," "like to lift weights," "take strength or diet supplements," "want big muscles," "are worried about their weight," "might be taking steroids." Response scales range from 1 = none to 5 = all, with 3 = half.

Attitudes towards steroids was assessed by adapting previous questions developed by Komoroski and Rickert (1992), and by Radakovich et al.(1993). The work of Perko and his associates (Perko, 1999, Dodge, Ford & Perko, 2003) was used to assess attitudes towards sports supplements. The questionnaire was pre-tested among K-12 teachers in a research class and two physical education classes (one in high school and one in middle school).

Initial access to the high school sample was made possible through informal contacts between the principal investigator and athletic and physical education directors as a

result of years of work on behalf of the Sports Leadership Institute at Adelphi University. These Directors were enthusiastic about the study, were able to convince their Principals and School Boards (where necessary), and could oversee the collection of Informed Consent statements (attached as Appendix C). However, the researchers had to rely on these Directors to make contact with their Junior High School colleagues. These schools had no history of cooperation with the Sports Leadership Institute or Adelphi University and no history of trust had been developed with the principal investigator. In some cases, the consent to be involved became a very "hard sell" to Junior High School administrators, and in several instances the Principal Investigator spent a long time with telephone conversations and follow-up letters of request, only to have permission to collect the data refused at the last moment.

The questionnaire was administered to a convenient sample of intermediate (seventh and eighth graders) and high school (junior and seniors) students attending physical education/health classes during spring 2006 (see Appendix A). The data was encoded and analyzed via a series of descriptive statistics, analysis of variance, and regression analyses using SPSS statistical software.

The Sample

The sample for this study comprised 319 high school students (64.5% of the total sample), and 176 junior high school students (35.5% of the total sample) from four high schools and four junior high schools in five school districts of Nassau and Suffolk County, NY. The characteristics of the sample are given in Table 1. Specifically, the junior high school participants were 7th graders (*N* = 89, 18% of the total sample), and 8th graders (*N* = 91, 18.4% of the total sample). The high school respondents were from the 9th grade (*N* = 33, 6.7% of the total sample), the 10th grade (*N* = 72, 14.5% of the total sample), the 11th grade (*N* = 113, 22.8% of the total sample), and the 12th grade (*N* = 94, 19% of the total sample). Three respondents did not give their grade. The age of the respondents ranged from 12 to 19 years. Fifty-five percent of the high school participants were male and 45% were female. Identical gender differences were found among the junior high school respondents. The racial make up of the sample was highly skewed, with Caucasian/Whites comprising 74% of the total. The Hispanic/American/Latino category was a distant second (9%), followed by Asian-American (4.6%), and Multi-ethnic (4.6%). The African-American/Black category was chosen by 2.9% of the sample. The remaining respondents chose from among the Native American/Indian, Pacific Islander, and "Other" categories.

The numerical difference in the high school and junior high school sub-samples, and the lack of racial variation in the general sample reflect the reality of doing survey research in Long Island schools, particularly on such a sensitive topic as steroid behavior.

Table 1

Demographic Characteristics of Respondents

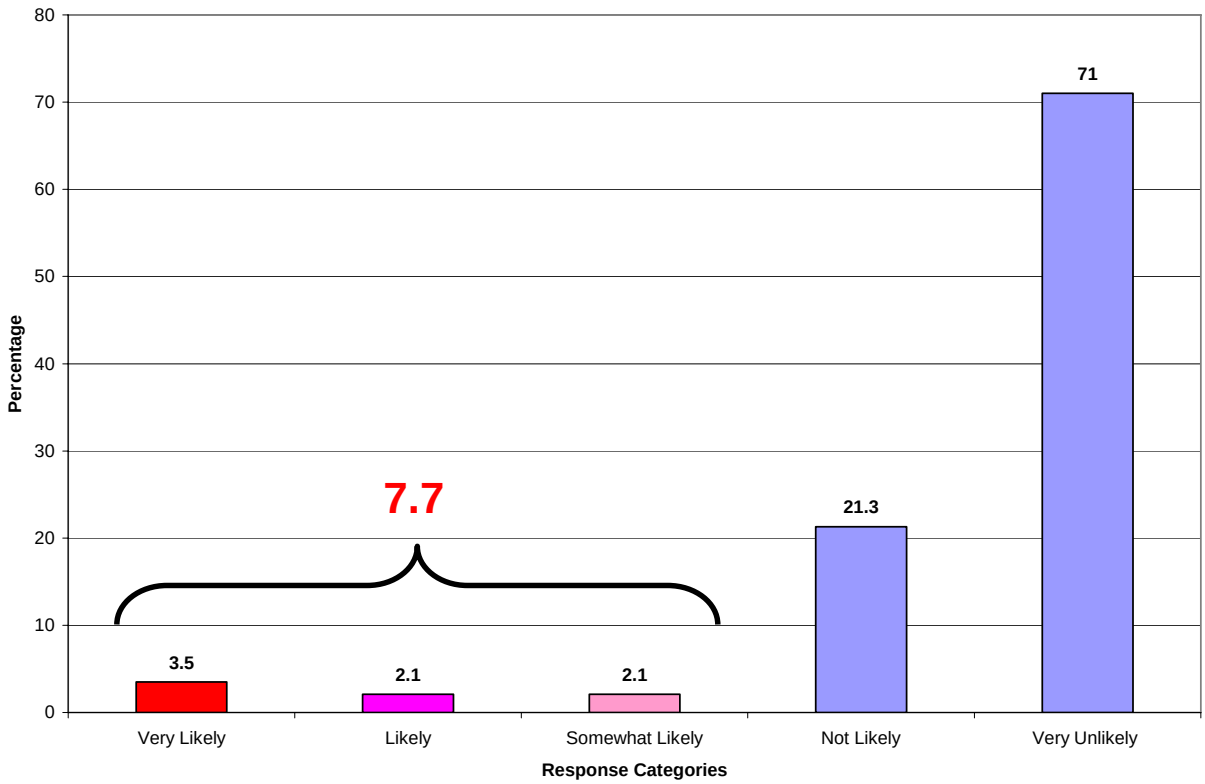
Demographic Characteristic	*N*	*% of N*
School Level		
Intermediate School		
7th grade	89	18.0
8th grade	91	18.4
Sub-total	176	35.5
High School		
9th grade	33	6.7
10th grade	72	14.5
11th grade	113	22.8
12th grade	94	19.0
Sub-total	312	64.5
Missing Grade	3	0.6
Total	495	
Age (years)		
12	45	9.1
13	74	14.9
14	75	15.2
15	58	11.7
16	102	20.6
17	100	20.2
18	35	7.1
19	4	0.8
Missing	2	0.4
Gender		
Male	272	54.9
Female	221	44.6
Missing	2	0.4
Race/Ethnicity		
Caucasian/White	362	73.1
Hispanic-American/Latino	44	8.9
Asian-American	23	4.6
African-American/Black	14	2.8
Multi-ethnic	23	4.6
Other	16	3.2
Pacific Islander	5	1.0
Native American/Indian	3	0.6
Missing	5	1.0

RESULTS

Description of steroids and sports supplements behavior and attitudes

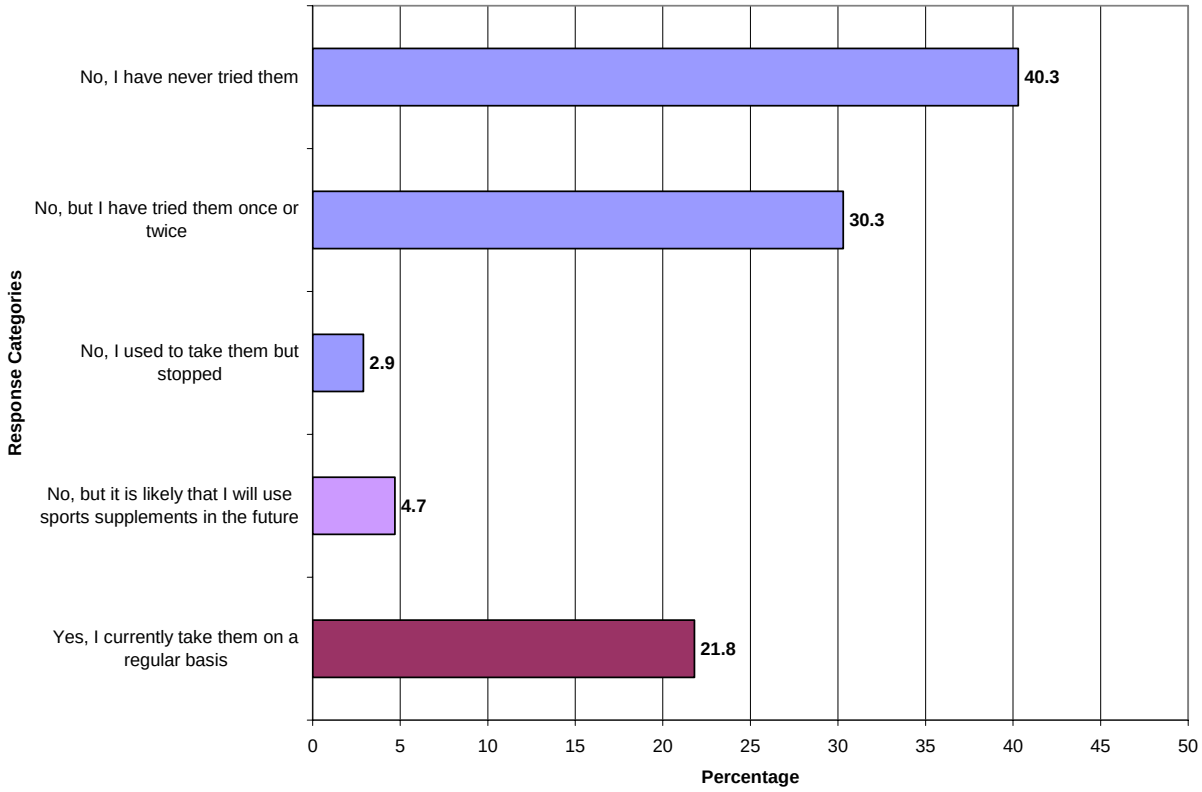
The researchers decided that direct question of respondents' steroid use would be seen as problematic by school administrators, and make consent for the study more difficult to achieve. Instead, the respondents were asked, "how likely is it that you will use steroids in the future?" This question yielded a total of 495 responses in the following "fixed choice" categories; "very likely" (*N* = 17, 3.5%), "likely" (*N* = 10, 2.1%), "somewhat likely" (*N* = 10, 2.1%), "not likely" (*N* = 104, 21.4%), and "very unlikely" (*N* = 345, 71%). These results (see Figure 1) showed that 37 respondents (7.7%) see steroid use as part of their future and are potentially "at risk." However, for the great majority of the respondents, steroid use did not appear to be an important issue in their peer groups. Respondents were asked, "How many kids do you hang out with take steroids?" The results showed that 400 (86%) chose "none at all" as their response, 43 (9.2%) chose "some," 7 (1.5%) chose "half," 6 (1.3%) chose "more than half," and 9 (1.9%) chose "all."

Figure 1. Percent of respondents' answer to "How likely is it that you will use steroids in the future?"



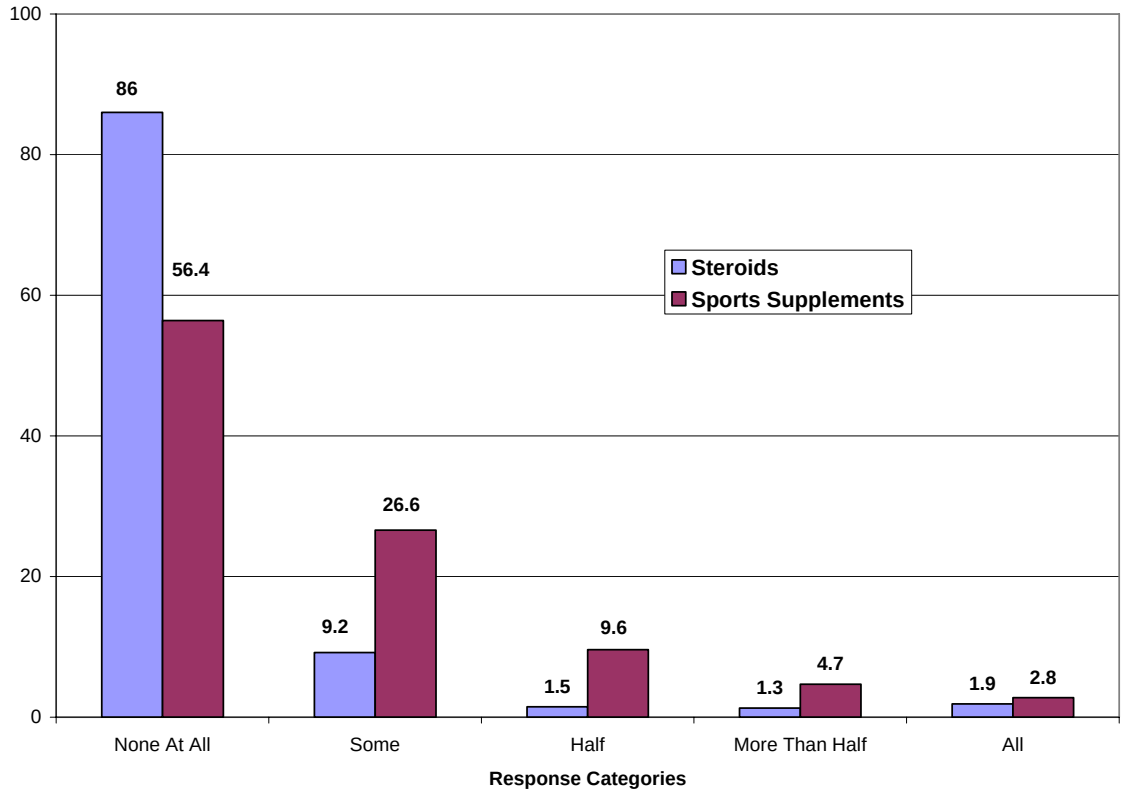
Respondents were asked whether or not they took one or more sports supplements like Red Bull, mega-vitamins, protein shakes, diet pills, etc. These results are given in Figure 2. Four hundred and ninety one respondents answered this question, of which 107 (21.8%) currently take them on a regular basis, 23 (4.7%) do not take them but would likely take them in the future, 14 (2.9%) used to take sports supplements but have stopped, 149 (30%) have tried them once or twice, and 198 (40.3%) have never tried sports supplements. These results showed that taking sports supplements were part of the current or future plans of 130 (26.5%) of the respondents.

Figure 2. Percent of respondents' answers to "Do you take one or more sports supplements (like Red Bull, mega-vitamins, protein shakes, diet pills, creatine, Hot Stuff, Andro)?"



Respondents were also asked, "How many kids you hang out with take sports supplements?" The results (see Figure 3) showed that 265 (56.4%) chose "none at all" as the correct response, 125 (26.6%) chose "some," 45 (9.6%) chose "half," 22 (4.7%) chose "more than half," and 13 (2.8%) chose "all." For just over 50% of the respondents, taking sports supplements was not characteristic of their peer group.

Figure 3. Percent of respondents' answers to "How many of the kids do you hang out with take steroids/sports supplements?"



Respondents were then asked for what reason/s they would use steroids, if they chose to do so in the future. This question provided sixteen options for the respondents who made a total of 1,015 choices. The numbers and percentages for these choices are given in Table 2. The most popular reasons include "gaining muscle size" (ranked first, 16.3%), "gaining strength" (ranked third, 10.5%), "losing weight" (ranked fourth, 10.2%) and "losing body fat" (ranked seventh, 9.4%), and to "play sports better" (ranked fifth, 10.1%). Also important was to "look better" (ranked second, 11%). These categories accounted for 67.5% of the total number of choices. The implications of these results are that steroid use is seen as a personal decision on the part of the potential user related to increasing strength and muscularity, and the perceived rewards of these gains in the form of improved physical appearance and sports performance. In contrast, reasons to take steroids because of group pressure (e.g., "pressure from others," *N* = 12, 1.2%), or the desire to experiment with drugs (e.g., "curious about drugs," *N* = 8, .89%, "like to take risks," *N* = 8, .89%) where seen as negligible.

The reasons given by respondents for using sports supplements in the future are also given in Table 2. Respondents made a total of 872 choices among the 16 categories. With the exception of "for energy" (ranked first, 20.8%), these choices were similar to the reasons given for steroid use. Specifically, "gaining muscle size" (ranked second,

12.3%), to “play sports better” (ranked third, 10.8%), “losing weight” (ranked fourth, 9.9%), “gaining strength” (ranked fifth, 9.6%), to “look better” (ranked sixth, 8.7%) and “losing body fat” (ranked seventh, 7.7%) mirrored the steroid choices with minor variations in rank. These categories accounted for 79.8% of the total number of choices. As with the steroid choices, group pressure (e.g., “to be part of my group,” N = 2, .23%, and “pressure from others,” N = 2, .23%), or the excitement of experimentation (e.g., “curious about drugs,” N = 3, .34%, “like to take risks,” N = 5, .57%) where seen as inconsequential.

These results show that the respondents’ predict very similar reasons for the future use of steroids and sports supplements. The only difference is with the importance attached to the use these “drugs” as a source of energy (ranked 1 for sports supplements and 8 for steroids). For all the other uses the rankings for steroids and sports supplements are very close with the exception of “”looking better” (ranked 2 for steroids and 7 for sports supplements). In other words from the respondents’ perspective, sports supplements use appear to be a less negative way than steroid use to achieve the same corporeal benefits. Furthermore, curiosity, excitement, and group pressure are equally unimportant reasons for using both steroids and sports supplements.

Table 2.

Frequency (*f*), Percent of Frequency (*% f*) and Rank of Respondents' Reasons for Taking Steroids and Sports Supplements in the Future

	Steroids		Sports supplements		Rank	
Reason for use in the future	*f*	*% f*	*f*	*% f*	Steroids	Sports Supp.
Gain muscle size	165	16.3	107	12.3	1	2
Look better	112	11.0	76	8.7	2	7
Gain strength	107	10.5	84	10.5	3	6
Lose weight	104	10.2	86	10.2	4	5
Play sports better	103	10.1	103	9.9	5	3
Not sure	99	9.7	99	9.6	6	4
Lose body fat (get cut)	95	9.4	67	7.7	7	8
For energy	84	8.3	181	20.8	8	1
General health reasons	43	4.4	45	5.2	9	9
Gain weight	36	3.6	25	2.9	10	10
Others	22	2.2	11	1.3	11	12
It’s exciting	17	1.7	24	2.7	12	11
Pressure from others	12	1.2	2	0.2	13	15
Curious about drugs	8	0.79	3	0.3	14	14
Like to take risk	8	0.79	5	5.7	15	13
To be a part of my group	0	0	2	0.2	16	15

Respondents were then asked to assess the reasons that their peers would use steroids on a scale of 1 to 5 in which 1 = “strongly agree,” 2 = “agree,” 3 = “don’t know,” 4 = “disagree,” and 5 = “strongly disagree.” The mean, standard deviation and rank order of each choice for steroid use and each choice for sports supplements use are given in Table 3. Also, the t-test comparisons of the steroid/sports supplements means that achieved significance at the .05 level are noted.

Table 3.

Means, Standard Deviations, and Rank of Respondents Ratings of Peers' Reasons for Taking Steroids and Sports Supplements (the lower the score the stronger the belief in reason)

	Kids my age use STEROIDS because…		Kids my age use SPORTS SUPPLEMENTS because…		Rank	
Reason	*M*	*SD*	*M*	*SD*	Steroid	Sport Supp.
*they want to have bigger muscles	2.04	1.08	2.43	1.07	1	4
*they want to do better in sports	2.07	1.04	2.26	1.00	2	1
*they want to gain strength	2.12	1.05	2.39	1.05	3	3
*they want to look good	2.24	1.04	2.52	1.11	4	6
*they want to lose body fat (get cut)	2.28	1.02	2.48	1.03	5	5
they want to gain energy	2.41	1.01	2.35	1.06	6	2
*professional athletes take them	2.48	1.09	2.63	1.12	7	8
they want to lose weight	2.70	1.01	2.60	1.03	8	7
they want to be a part of the group	2.78	1.10	2.85	1.12	9	9
they are pressured by others	2.84	1.05	2.91	1.11	10	10
it makes them popular	2.94	1.15	3.00	1.15	11	12
*they like to experiment with drugs	2.95	1.13	3.13	1.10	12	17
they like to take risks	2.96	1.05	3.04	1.10	13	14
*they want to gain weight	3.06	1.05	2.92	1.08	14	11
it's exciting	3.10	1.06	3.00	1.10	15	13
it is in their medication	3.16	1.04	3.10	1.08	16	16
*they are tested by scientists	3.42	1.11	3.21	1.12	17	18
*they are safe	3.68	1.20	3.06	2.13	18	15

*significant difference between steroid and sports supplements means at $p < .05$.

These results show that the respondents' perceptions of why their peers use steroids and sports supplement are similar to their own choices if they were to use steroids and sports supplements in the future. The top five reasons respondents' project for their peers to use steroids were that they want to have big muscles, to do better in sports, to gain strength, to look good, and to "get cut." The top five reason for peers to use sports supplements were almost identical, with wanting to do better at sports as the number one reason, followed by wanting to gain energy, gain strength, have big muscle, and "get cut." An overall comparison of the importance of reasons to use steroids and reasons to use sports supplements shows great similarity. The rank order of importance based on the value of the means (given in the last two column of Table 3) shows only one comparison ("they like to experiment with drugs") that is a five-rank difference (12th for steroids and 17th for sports supplements), and one comparison ("they want to gain energy') that is a four-rank difference (6th for steroids and 2nd for sports supplements). There is a three-rank difference for only two comparisons, ("they want to have bigger muscles," 1st for steroids and 4th for sports supplements, and "they are safe," 18th for steroids and 15 for sports supplements). The other 14 parings are either identical or differ only in one rank.

These relationships tend to reflect both similarities and differences in respondents' perceptions of the effects of taking steroids and sports supplements on corporeal changes (and perhaps the personal status attributed to adolescents as a result). On the one hand, respondents' feel that using both steroids and sports supplements can enhance the strength, sports performance, and physical appearance of their peers. On the other hand, the significant differences in the mean scores on most of these comparisons shows that respondents' believe steroids rather than sports supplements to be more often chosen by their peers.

The researchers also asked the extent to which respondents agreed or disagreed with their peers' use of steroids and sports supplements. The same choices and rating scale as those in the previous question were used, and the results are given in Table 4. These results show that respondents' felt it was not OK for their peers to use steroids for all but one of the reasons provided in the question. The exception to this trend was when steroids were in the medicine of their peers. On this issue respondents were almost evenly divided, with 41.9% either strongly agreeing or agreeing that it was OK for their peers to take steroids compared to 37.6% who either disagreed or strongly disagreed. For the other statements, the percentage of respondents either strongly agreeing or agreeing varied from a high of 21.8% ("they want to gain strength") to a low of 11.3% ("it's exciting). Also relatively high was, "they want to do better in sports"(21.4%), and "they want to have big muscles" (20.1%). Aside from the medicine issue, the percentage of respondents' either disagreeing or strongly disagreeing that it was OK for kids to use steroids varied from a high of 74.1% ("it makes them popular") to a low of 58.8% ("they are tested by scientists"). In general then, these results show widespread condemnation by respondents (between just under 60% to just over 70%) of steroid use by their peers in a variety of situations.

Table 4.

Percent, Rank and Comparison of Mean of Responses Who Strongly Agree/Agree (SA/A) and Strongly Disagree/Disagree (SD/D) with (Acceptance) Peer' Reasons for Taking Steroids and Sports Supplements

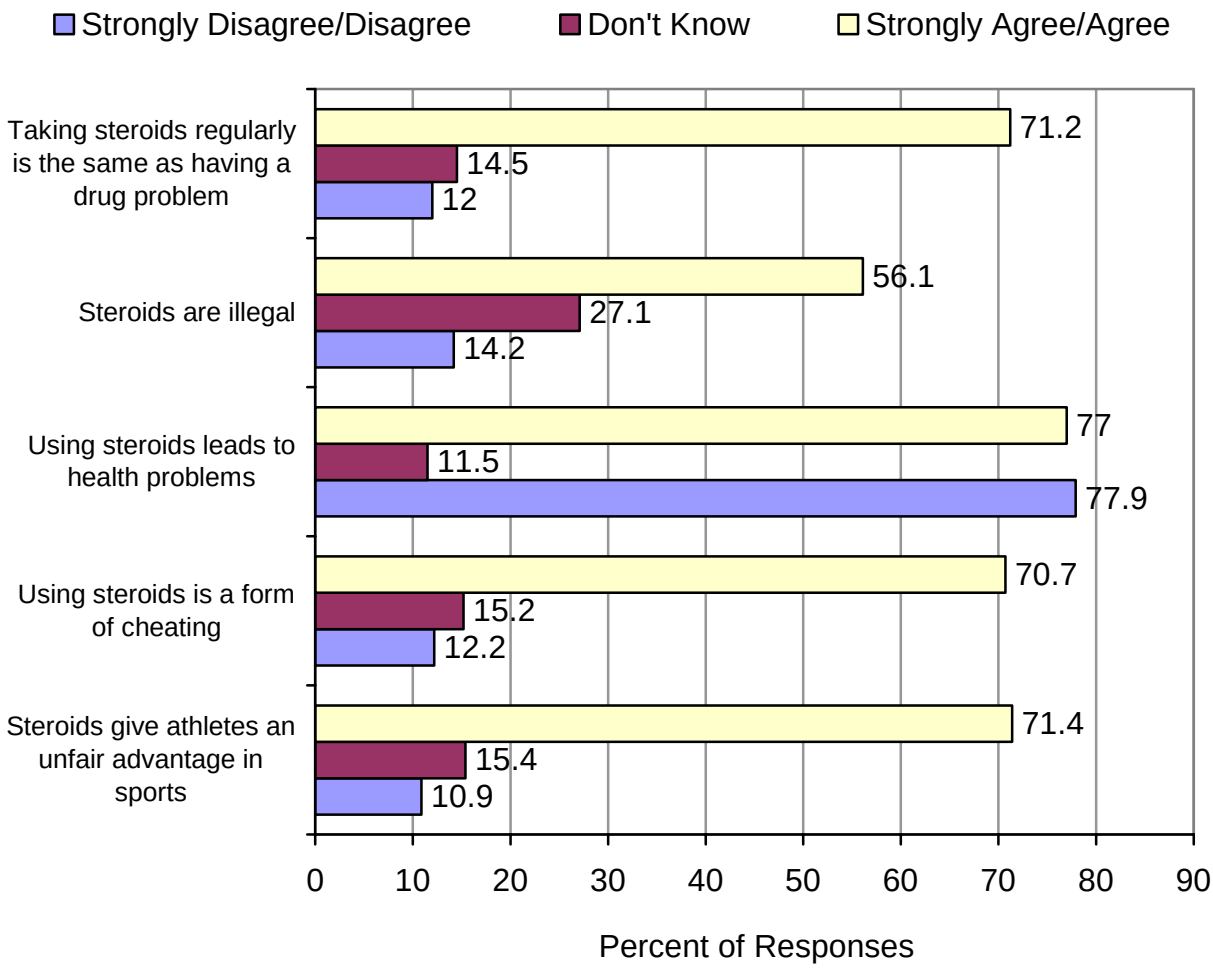
	It is OK for kids my age to use STEROIDS when…		It is OK for kids my age to use SPORTS SUPPLEMENTS when…		Rank	
Reason	% SA/A	% SD/D	% SA/A	% SD/D	Steroids	Sport Supp.
it is in their medication	41.9	37.6	38.7	33.9	1	2
*they want to gain strength	21.8	63.3	37.2	39.7	2	3
*they want to do better in sports	21.4	64.6	37	40.8	3	4
*they want to have bigger muscles	20.1	63.8	30.7	45.1	4	7
*they want to gain energy	19.4	63.7	40.7	37.8	5	1
*they want to lose body fat (get cut)	18.3	64.7	36.5	43.0	6	5
*they are tested by scientists	18.3	58.8	25.3	35.4	7	12
*they want to lose weight	17.9	63.7	31.8	42.1	8	6
*they want to look good	17.7	70.5	30.5	45.4	9	8
*they are safe	17.1	65.3	28.7	44.7	10	9
*professional athletes take them	16.4	68.0	26.2	46.8	11	10
*they want to gain weight	15.3	64.3	26.0	37.3	12	11
*they want to be a part of the group	14.6	70.5	19.3	55.6	13	14
*they are pressured by others	14.2	70.1	19.2	55.6	14	15
*it makes them popular	13.6	74.1	19.6	57.9	15	13
*they like to experiment with drugs	12.2	72.4	17.2	58.9	16	18
*they like to take risks	12.2	70.6	18.3	58.3	17	17
*it's exciting	11.3	73.7	18.7	55.5	18	16

*significant difference between steroid and sports supplements means at $p < .05$.

The respondents' reactions to the appropriateness of sports supplements use were less uniform than in the case of steroid use. These data are also reported in Table 4. While there was similarity over the issue of medication with 38.7% strongly agreeing or agreeing and 33.9% disagreeing or strongly disagreeing, there was a directional difference in the case of using sports supplements to gain energy. In this case 40.7% of respondents strongly agreed or agreed that this behavior was OK and 37.8% disagreed or strongly disagreed, whereas with steroids the majority (63.7%) disagreed or strongly disagreed that this behavior was OK. In the other 16 statements on the appropriateness of sports supplements use by their peers the percentage of respondents either strongly agreeing or agreeing ranged from a high of 37.2% ("they want to gain strength") to a low of 17.2% ("they like to experiment with drugs"). The percentage of respondents either disagreeing or strongly disagreeing ranged from a high of 58.92% ("they like to experiment with drugs") to a low of 35.4% ("they are tested by scientists"). In all these 16 contexts, the percentage of respondents feeling that it was not OK to use sports supplements was greater than the percentage of respondents feeling that it was OK. However, in every case, these differences were less extreme than for the equivalent statements with regard to steroid use. This relationship was confirmed by paired comparison t tests on the mean scores of steroid and sports supplements use in each context. In other words, with the exception of the medication and the energy issues, respondents disagreed that it was OK for their peers to use either steroids or sports supplements, although this disagreement was greater for steroids than for sports supplements use.

Respondents were also asked specific questions on the fairness and health issues related to steroids use. These results are given in Figure 4. For example, 353 respondents (73.1%) agreed or strongly agreed that, "steroids give athletes an unfair advantage in sports." Fifty-four respondents (11.2%) disagreed or strongly disagreed with this statement. The statement, "using steroids is a form of cheating," was agreed or strongly agreed with by 350 respondents (72.2%), while 60 respondents (12.4%) disagreed or strongly disagreed. Three hundred and eighty six respondents (79.7%) either agreed or strongly agreed with the statement that, "using steroids leads to health problems," (41 respondents or 8.5% disagreed or strongly disagree), while 278 (57.7%) agreed or strongly agreed with the statement that "steroids are illegal" (67 respondents or 14.5% disagreed or strongly disagreed). Finally, 352 respondents (72.9%) agreed or strongly agreed with the statement that "taking steroids regularly is the same as having a drug problem." Fifty-nine respondents (12.2%) disagreed or strongly disagreed with this statement.

Figure 4. Percent of respondents' beliefs about the fairness and health issues associated with steroid use.

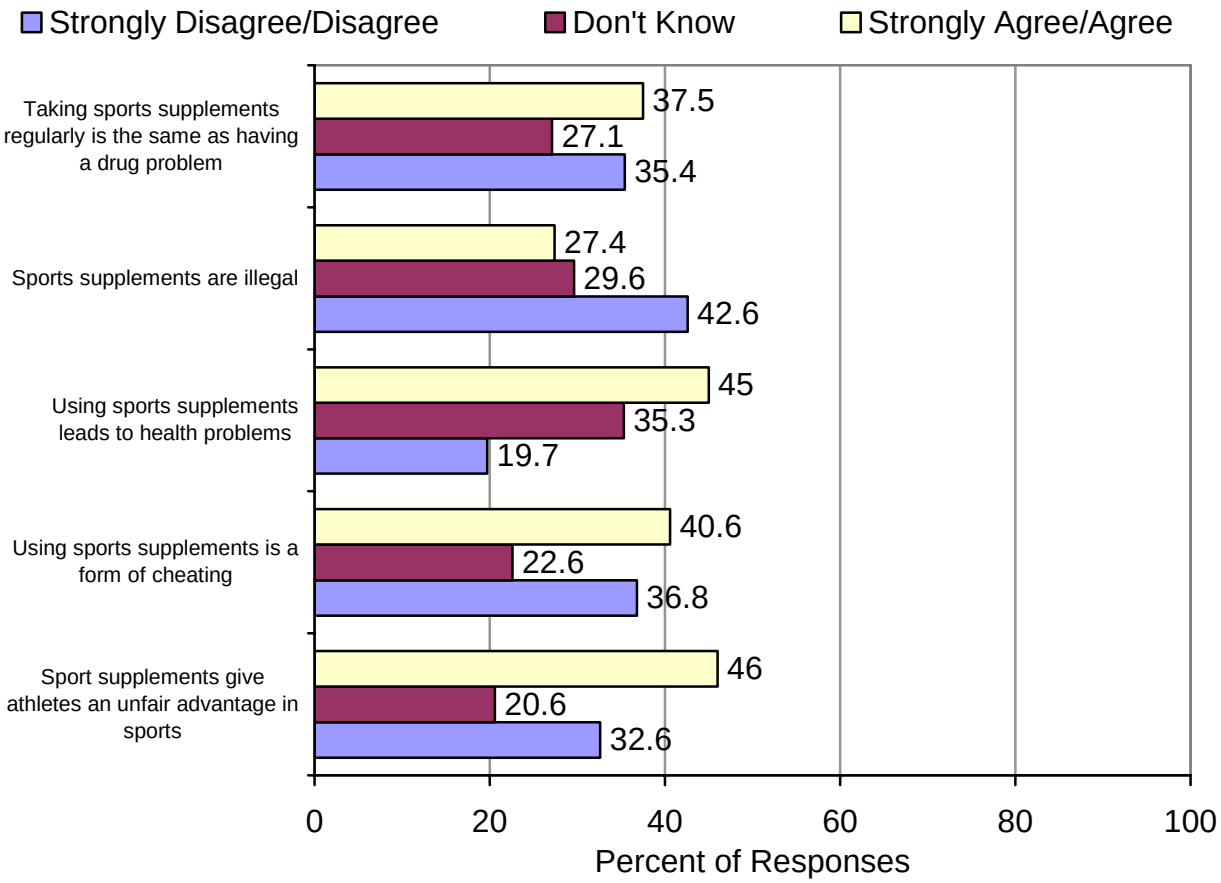


These results demonstrate a negative attitude to the fairness and health implications of steroid use by the great majority of respondents. This attitude complements their lack of interest in future steroid use and the lack of importance of steroids in their peer groups. This lack of salience may explain the finding that 134 respondents (27.8%) do not know that steroids are illegal. At the same time, there is a minority of respondents (varying between 8% and 15% depending on the statement) who disagree or strongly disagree with negative health and fairness implications of steroid use.

Respondents were also asked to respond to specific questions on the fairness and health issues related to sports supplements use. These results are given in Figure 5. Specifically, 219 respondents (46%) agreed or strongly agreed that “sports supplements give athletes an unfair advantage in sports.” One hundred and fifty-five respondents (32.6%) disagreed or strongly disagreed with this statement. The statement, “using sports supplements is a form of cheating,” was agreed or strongly agreed with by 191

respondents (40.6%), while 174 respondents (36.8%) disagreed or strongly disagreed. Two hundred and three respondents (45%) either agreed or strongly agreed with the statement that, “using sports supplements leads to health problems,” (93 respondents or 19.7% disagreed or strongly disagree), while 128 (27.4%) agreed or strongly agreed with the statement that “sports supplements are illegal” (200 respondents or 42.9% disagreed or strongly disagreed). Finally, 177 respondents (37.5%) agreed or strongly agreed with the statement that “taking sports supplements regularly is the same as having a drug problem.” One hundred and sixty-seven (35.6%) disagreed or strongly disagreed with this statement.

Figure 5. Percent of respondents' beliefs about the fairness and health issues related to the use of sports supplements.



These results show that there is a much greater disagreement among respondents over the negative effects of using sports supplements on the fairness and health issues than over steroid use. Paired comparisons of each steroid statement with its sports supplements counterpart showed strong statistical significance. Although the respondents acknowledged using sports supplements much more frequently than steroids, their responses still show a high level of ignorance over the legality issue.

Besides the 128 respondents (27.4%) who either agreed or strongly agreed that sports supplements were illegal, there were a further 138 (29.6%) who did not know.

To provide some variety to the predominantly fixed choice questions on steroid and sports supplements, the respondents' were then asked to react to a series of open-ended questions developed by the researchers. These took the form of hypothetical scenarios constructed by the researchers in which steroid and sports supplements use was contextualized in gendered sports and physical activity contexts. The first scenario was developed around Derrick, a high school linebacker, who needs to increase weight to improve his prospects for a college scholarship. Respondents' read the following:

> *Derrick is a high school linebacker with the potential to get a college football scholarship. He is not very tall, only 5 feet and 7 inches, and does not weigh very much, only 150 pounds. During the summer between his junior and senior year, Derrick begins a tough weight-lifting routine. He also started to use steroids that he bought from a person at a local gym. By pre-season practice, Derrick has greatly increased his strength and now weighs 175 pounds.*

The second scenario involved Jill, a high school cheerleader who feels she needs to develop more strength and muscular definition to achieve her goal of a college scholarship. Respondents' read the following:

> *Jill is a top cheerleader on her high school team that is known for its difficult gymnastics and pyramid routines. The team has also won several state titles. Jill has set her sights on a college cheerleading scholarship but is worried that she needs greater strength and a more defined, "hard body" to achieve her goal. She begins using steroids to get the strength and body shape she wants.*

The third scenario involved Mark, a high school student who is being bullied by older boys, and feels the need to increase his strength and muscularity. Respondents' read the following:

> *Mark is 15 years old, a little bit overweight, and not interested in sports. Mark would probably call himself a bit of a "burnout" and is sometimes bullied by bigger and older boys who hang out with other groups. So, Mark gets into weight lifting in a big way, but still cannot get the body he wants. Finally, Mark turns to steroids to give him that extra edge to gain strength.*

After each scenario respondents were asked if it was OK for Derrick/Jill/Mark to use steroids (yes or no), and to give reasons for their decision.

These results showed that the negative attitudes about steroid use found in the fixed choice questions were also reflected in the respondents' answers to all three scenarios (see Table 5). The percentage of respondents who decided that Derrick, Jill and Mark should not use steroids was high, and varied from 89% (Mark) to 92.4% (Jill). The respondents' percentages agreeing that it was OK for Derrick, Jill and Mark to use steroids was low, varying from 11% (Mark) to 7.6% (Jill). The respondents' reaction to the question of whether it was OK for Derrick, Jill and Mark to use sports supplements

was generally positive. In Derrick's case 77.3% of respondents agreed that the use of sports supplements was appropriate while 22.7% disagree. Just under 71% of the respondents endorsed the use of sports supplements for Jill, compared to 28.9% who did not. The equivalent percentages for Mark were 69.1% (yes), and 30.9% (no). These results show that, across the three scenarios, no matter what the gender or physical activity goal of the individual may be, respondents were in high agreement that steroid use was not appropriate. However, sports supplements use was endorsed by respondents independent of gender or goal, all be it with a higher percentage of disagreement (between just under 23% to just under 31%) than in the case of steroids.

Table 5

Frequency and Percent of Frequency of Respondents Who Believe It Is OK for Person in the Scenario to Use Steroids and Sports Supplements

	Derrick		Jill		Mark	
	Steroids	Sports Supp.	Steroids	Sports Supp.	Steroids	Sports Supp.
YES						
f	44.0	335.0	35.0	319.0	49.0	299.0
% f	9.3	77.3	7.6	70.9	11.0	69.1
NO						
f	428	104.0	427.0	130.0	398.0	134.0
% f	90.7	22.7	92.4	28.9	89.0	30.9

The respondents' reasons for their decisions about whether or not to endorse steroids and sports supplements use in the three scenarios were coded by the principal investigator and one research colleague. Initially the principal investigator developed a coding framework that was used by both researchers to code the responses. The researchers subsequently met to refine the framework, discussed individual cases where there was disagreement, and reached consensus on these statements. Two choices were coded for each respondent where necessary. The following thematic codes were used for each scenario: health (general) – positive, health (general) – negative, natural, not natural, energy – positive, energy – negative, weight – positive, weight – negative, use properly -in moderation, use improperly – extreme, steroid /sports supplements comparison positive, steroid /sports supplements comparison negative, fairness/cheating positive, fairness/cheating negative, legal, illegal, personal integrity positive, personal integrity negative, personal choice positive, personal choice negative, personal appearance positive, personal appearance negative, self-concept positive, self concept negative, athletic achievement/performance/strength positive,

athletic achievement/performance/strength negative, team/group consequences positive, team/group consequences negative, don't know, uncodeable. The frequency and percent of these thematic response categories for steroids and sports supplements use in each scenario are given in Tables 6 and 7.

Table 6

Frequency and Percent of Frequency of Thematic Response Rejecting or Accepting the Use of Steroids by Derrick, Jill, and Mark

	Steroids					
	Derrick		Jill		Mark	
Thematic Response Category	*f*	*% f*	*f*	*% f*	*f*	*% f*
Negative Responses	431	92.0	368	95.0	292	90.7
Health	202	46.9	162	44.0	141	48.3
Cheating/Unfair	101	23.5	58	15.8	12	4.1
Illegal	41	9.5	47	12.8	44	15.1
Not Natural	37	8.6	49	13.3	50	17.1
Physical Appearance			32	8.7		
Perception –Mark's Self Concept					16	5.5
Positive Responses	38	8.0	19	5.0	30	19.3
Increase Athletic Performance	12		9			
OK If Used Properly	7		3		4	
Personal Decision	7		4		4	
Help Mark's Problem					4	
Perception – Mark's Self Concept					3	
Total # of Responses Coded	469		387		322	
No. of Uncodeable Responses	56		81		105	

Of the 469 usable reasons that were provided for Derrick's steroid scenario where 431 (92%) were negative and 38 (8%) were positive. The most common negative responses were about the detrimental effects of steroid use on Derrick's general health (*N* = 202, 46.9%). For example, one respondent said, "it's bad… steroids have a negative effect on your body, you can even die from using them." The second most common reason given was that steroid use was a form of cheating and unfair (*N* = 101,

23.5%), for example, “it gives you an unfair advantage”. Other frequently mentioned reasons were that steroid use is illegal (*N* = 41, 9.5%), and “not natural,” (*N* = 37, 8.6%). These reasons accounted for 88.5% of the total number of negative responses. The most frequently mentioned of the 38 positive reasons was that steroid use would increase athletic performance and lead to an athletic scholarship (*N* = 12), is OK if “used properly” (*N* = 7), and was Derrick’s personal decision (*N* = 7).

Table 7

Frequency and Percent of Frequency of Thematic Response Rejecting or Accepting the Use of Sports Supplements by Derrick, Jill, and Mark

	Sports supplements					
	Derrick		Jill		Mark	
Thematic Response Category	*f*	*% f*	*f*	*% f*	*f*	*% f*
Negative Responses	81	16.8	95	22.5	86	22.1
Health	41	50.6	74	22.6	34	39.5
Cheating/Unfair	17	21	14	14.7	11	12.8
Not Natural	10	12.3	15	15.8	24	27.9
Not Steroids	2	3.7				
Illegal	2	2.4	3	3.2		
No Effect of Athletic Achievement	2	2.4	6	6.3		
Effect on Weight					19	6.3
OK If Used Properly					15	4.9
Personal Choice					7	2.3
Positive Responses	401	83.2	327	77.5	303	77.9
Health	108	22.4	74	22.6	79	26.1
Energy	95	23.7	91	27.8	74	24.4
Legal	62	15.6	55	16.8	37	12.2
Not Steroids	51	12.7			24	7.9
Increase Athletic Achievement	24	6	43	13.1	34	11.2
Fair/Not Cheating	13	3.2	9	2.7		
Natural	5	1.2	5	1.5		
Total # of Responses Coded	482		422		389	
No. of Uncodeable Responses	22		35		43	

There were a total of 482 usable reasons given for Derrick's use of sports supplements. Of these reasons, 81 (16.8%) were negative, while 401 (83.2%) were positive. Derrick's general health was the most common reason, although in this case (contrary to the steroid case above), it was seen as the most positive reason (e.g., "gives him energy" and "he stays healthy") to take sports supplements (*N* = 108, 22.4%). Respondents' also cited the energy benefits of sports supplements (*N* = 95, 23.7%), their legality (*N* = 62, 15.6 %), the fact that they were not steroids, for example "its better than taking steroids," (*N* = 51, 12.7%), that athletic achievement would increase (*N* = 24, 6%), that taking them was fair and not cheating (*N* = 13, 3.2%), and that they were "natural" (*N* = 5, 1.2%). These reasons accounted for 84.9% of all the positive reasons given. General health comments as reasons not to take sports supplements were made by 41 respondents, accounting for 50.6% of all the negative responses. Seventeen respondents (21%) believed taking sports supplements was a form of cheating (e.g., "its not fair on other players that he would be better because he is taking supplements"), 10 respondents (12.3%) thought that taking sports supplements was not natural, 3 (3.7%) compared them negatively to steroids, 2 (2.4%) thought they were illegal, and 2 (2.4%) believed that athletic achievement would not be enhanced. These reasons accounted for more than 90% of the total number of negative reasons.

The respondents' reasons for Derrick not taking steroids reflect the importance of health and fairness, historically the most common themes in the public debate on steroid use in sports (Denham, 1999). These issues also figured prominently in the respondents' reasoning about Derrick taking sports supplements, although there was some ambivalence over health. In some respects, respondents were authenticating Derrick's use of sports supplements against the perceived negative effect of steroids. At the same time, a minority of respondents rejected Derrick's use of sports supplements, and did so for the same reasons (health, fairness, and being unnatural) used by the majority to reject Derrick using steroids.

Of the 387 usable reasons (there were 81 uncodeable responses, and 5 "don't know" responses) that were provided for Jill's steroid scenario 368 (95%) were negative and 19 (5%) were positive. Negative health issues (N = 162, 44%) were the by far the most common reason cited by respondents, followed by fairness and cheating (N = 58, 15.8%), not natural (N = 49, 13.3%), and illegality (N = 47, 12.8%). For example, one respondents said "steroid use can have serious consequences and harm her." Another commented "she would get a scholarship for lying." Physical appearance was also cited as a negative reason by 32 respondents (8.7%). One respondent said "cheerleaders are supposed to be pretty and the effects of steroids aren't pretty." These choices accounted for 94.6% of the total number of negative reasons. The most frequent positive reasons given by respondents to endorse Jill's steroid use was increase in athletic performance (N = 9), followed by personal choice (N = 4), OK if used properly (N = 3), and personal appearance (N= 3).

There were a total of 422 usable reasons given for Jill's use of sports supplements in this scenario. Ninety-five of these reasons (22.5%) were negative, while 327 (77.5%) were positive. Both energy (*N* = 91, 27.8%), and general health (*N* = 74, 22.6%) figured

prominently in these reasons. For example, one respondent commented “it will help her gain energy to work out more.” Another said “they are not bad for you and don’t hurt you.” Also perceived as important positive reasons for Jill’s use of sports supplements were the legality issue (*N* = 55, 16.8%), athletic achievement (*N* = 43, 13.1%), and that sports supplements were fair (*N* = 9, 2.7%) and natural (*N* =5, 1.5%). However, 47 respondents (49.5%) cited general health as a reason not to take sports supplements, and 15 (15.8%) believed that sports supplements were not natural. Respondents made comments such as “they lead to heart problems,” “they can lead to steroids,” and “unnatural levels of protein and vitamins in your body.” Fourteen respondents (14.7%) stated that taking sports supplements was unfair, 3 (3.2%) said it was illegal, and 6 (6.3%) questioned the athletic improvement that would accrue.

The reasoning behind respondents’ assessment of Jill’s steroid and sports supplements use generally followed the same pattern as in Derrick’s scenario. The common themes of health, fairness, illegality, and not being natural figured prominently in the anti-steroid use choices, and the energy properties of sports supplements where an important endorsement for their use. As before, there was some ambivalence over health issues as far as sports supplement use was concerned. The exception to this trend was the issue of physical appearance. In the case of Jill’s steroid use, respondents’ used phrases such as “she would look like man,” implying a layer of stigma around her femininity. Negative comments about physical appearance such as those for Jill did not appear in response to Derrick’s (or Mark’s) steroid use, and the issue was not raised over Jill’s use of sports supplements.

Respondents’ gave a total of 322 usable reasons for Mark’s use of steroids. Two hundred ninety-two (90.7%) of these responses were negative, while 30 (9.3%) were positive. One hundred forty-one of the negative responses (48.3%) were health related, 50 (17.1%) were comments on steroids being unnatural, 44 (15.1%) involved steroids illegality, and 16 (5.5%) were related to the perception that Mark had a negative self-concept. These responses included the following comments, “they are unhealthy and could harm him,” “he will become addicted to steroids,” “he can loose weight the right way, he doesn’t need to use steroids,” and “he should accept himself for who he is.” Only 12 respondents (4.1%) mentioned cheating and fairness. These choices accounted for over 90% of all negative choices. Eight respondents cited positive status consequences for Mark if he used steroids (e.g., he wants to be popular with big muscles”), 4 endorsed steroids if used properly, 4 supported his right to use them as part of personal choice, and 4 stated steroid use would help to “solve” Mark’s weight problem. Finally, 3 respondents saw steroid use leading to a positive self-concept.

A total of 389 reasons were coded into categories were provided for Mark’s sports supplements use. Of these reasons, 86 (22.1%) were negative while 303 (77.9%) were positive. Just over 50% of the positive reasons were provided by the issue of general health (*N* = 79, 26.1%) and the respondents’ belief in the energy producing properties of sports supplements (*N* = 74, 24.4%). For example, one respondent said “he can be healthy,” and another said “it gives energy to help him work out.” Sports supplement use was also endorsed because they were perceived as legal (*N* = 37, 12.2%),

improved athletic performance (*N* = 34, 11.2%), were better than steroids (*N* = 24, 7.9%), had a positive effect on Mark's weight (*N* = 19, 6.3%), were OK if used properly (*N* = 15, 4.9%), and were his personal choice (*N* = 7, 2.3%). These reasons accounted for over 95% of all the positive reasons. More than 80% of the negative reasons were accounted for by respondents' believing that sports supplements use would harm Mark's general health (*N* = 34, 39.5%), that sports supplements use was not natural (*N* = 24, 27.9 %), and that sports supplements were a form of cheating (*N* = 11, 12.8%). Comments such as "they are addicting," "they make your heart race," "he should not be doing things that are unnatural," and "they give him an unfair advantage," are characteristic of these categories.

Mark's scenarios provided two exceptions to the general trends found in the previous two cases. First, the issue of fairness and cheating, important in the other two cases, did not figure prominently. It was only mentioned as a negative reason for steroid use by 12 participants (4.1%), and by 2 participants (.7%) in the negative reasons for using sports supplements. This implies that fairness and steroid use is an issue particularly salient to participation in organized sports, which was not the subject of Mark's scenario. Second, the issue of self-concept was raised as a reason not to take steroids in this scenario, although by a relatively small number of respondents (*N* = 16). In some ways these two points are related because in respondents' comments, the issue of self-concept was linked to Mark "cheating himself", perhaps equivalent to cheating opponents in sport.

Respondents' reactions to these three scenarios show that they endorse the themes of health and fairness commonly used to reject the use of steroids in sports. They also endorse the belief (reinforced by advertising if not by scientific research) that sports supplements are valuable sources of energy during physical activity. To some extent the legitimacy of sports supplements are supported against the illegitimacy of steroids. That is, the reasons for not using steroids are the reasons that it is OK to use sports supplements. At the same time, there is an ambivalent background to this relationship over the issue of health, with a minority of respondents' questioning the general health benefits of sports supplements use. This ambivalence may help to explain some of the less positive ratings for sports supplements use in the fixed choice questions.

While providing support for common trends in all three situations, the respondents' reasons also show some specificity in gender and context. Negative stereotypes about physical strength and conventional definitions of femininity occur in Jill's scenario. Apparently, the "hard body" she might achieve by using steroids is not "attractive," but the one she can get from sports supplements is less threatening. The use of steroids by Derrick and Jill are sanctioned because it exceeds the limits of fair competition in sports, but if Mark uses steroids he cheats himself and confirms his "loser" status.

In summary, this section has provided a description of the quantitative and qualitative data on the projected behavior and attitudes towards steroids and sports supplements use by our sample of junior high school and high school students. The results show that the large majority of participants rejected steroid use in the future, and generally

had strongly negative attitudes towards steroid use by their peers in a number of different contexts. Their reaction to the use of sports supplements by themselves and their peers was more ambivalent. In the next sections we test the extent to which gender, level of school, and clique membership influence these steroids and sports supplements attitudes and behaviors.

The effect of gender on respondents' steroids and sports supplements behavior and attitudes

The relationship between gender and respondents' steroids and sports supplements attitudes and behavior was examined by a series of one-way ANOVA's. The results are presented in Tables 8 and 9 . These results show that gender was a factor in respondents' perceptions of their own future steroids and current sports supplements behavior. Specifically, females were significantly less likely than males to say that they currently use sports supplements, and to see themselves using steroids in the future. However, gender did not have much effect on respondents' attitudes towards fairness and health issues related to steroids and sports supplements use. Males and females did not significantly differ on their responses to all but one of the steroids and sports supplements statements. The exception was the result showing males to be less likely than females to agree that steroids give athletes an unfair advantage in sports.

Table 8

One-way ANOVA Results of Effect of Gender on Respondents' Steroids and Sport Supplement Behavior and Attitudes

Behaviors and Attitudes	Males (*M*)	Females (*M*)	Significance
Steroids			
Future Steroid Use	4.41	4.70	*
Steroids-Unfair Advantage-athletes	1.93	2.25	*
Steroids- a form of cheating	2.91	2.89	NS
Steroids leads to health problems	1.89	1.93	NS
Steroids are illegal	2.19	2.38	NS
Steroids same as drug problem	2.08	2.09	NS
Sports Supplements (SS)			
Current SS Use	3.44	3.87	*
SS Unfair Advantage-athletes	2.58	2.58	NS
SS- a form of cheating	2.75	2.73	NS
SS leads to health problems	2.55	2.42	NS
SS are illegal	2.92	3.09	NS
SS same as drug problem	2.82	2.70	NS

* Significant at $p < .05$ level

There were also significant gender effects when respondents assessed the characteristics of their peer group (see Table 9). In these statements respondents' chose the degree to which they thought that "kids you hang out with" were concerned about a number of corporeal issues. These were "are concerned about how they look," "like to lift weights," "take sports supplements," "take steroids," "want big muscles," and "are worried about their weight." The following choices were given to respondents' for each statement: "not at all," "some", "half," "more than half," and "all." The gender effects were consistent with the corporeal stereotypes associated with male and female groups. Specifically, females were significantly more likely than males to choose general physical appearance issues such as concern with looks (*M* = 3.1), and being worried about weight (*M* = 3.02). These concerns were projected to be characteristic of about 50% of the peer group associates of the girls (results not shown). Males were significantly more likely than females to choose strength-related characteristics like lifting weights (*M* = 2.71), wanting big muscles (*M* = 2.75), taking steroids (*M* = 1.35), and taking sports supplements (*M* = 1.82). Although "wanting big muscles" and "lifting weights" was characteristic of just under 50% of the males' peer group associates

(results not shown), the mean values for taking steroids and sports supplements show that these behaviors were not projected by respondents' as a legitimate addition to lifting weights with the goal of actually getting big muscles.

Table 9

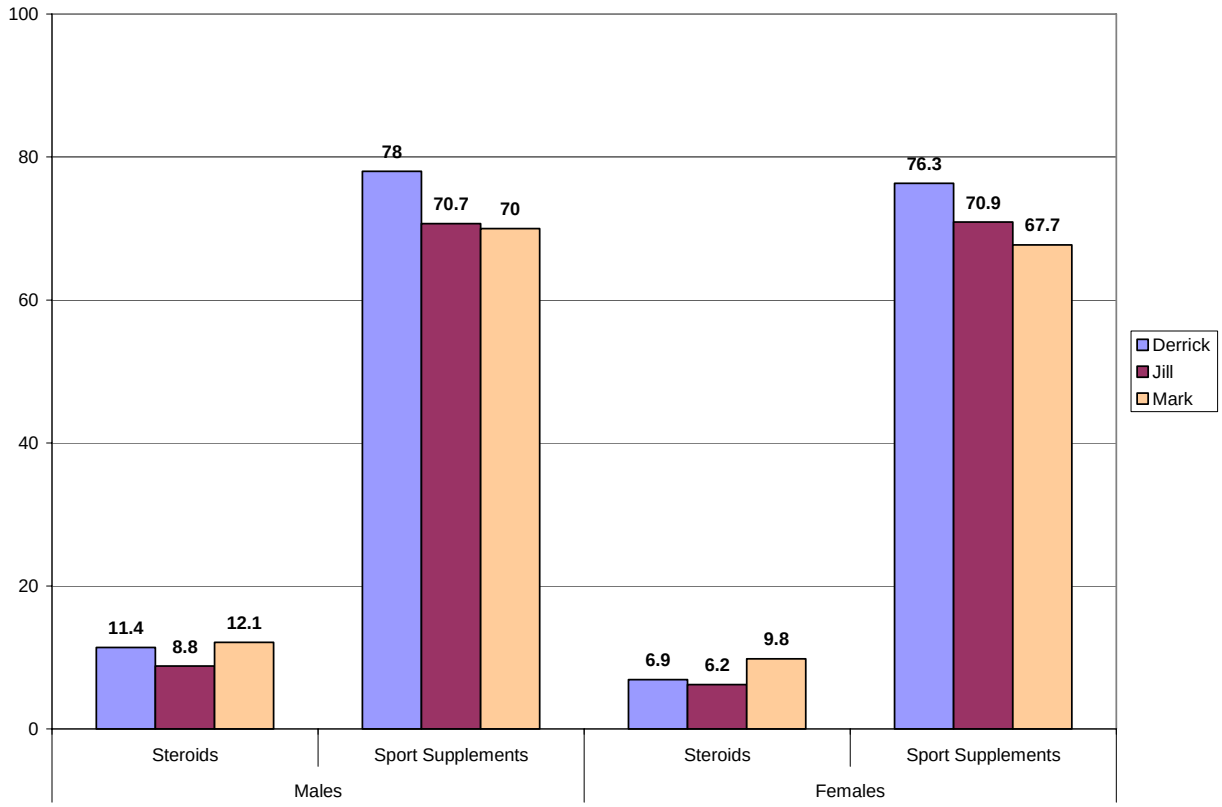
Mean and Significance Values for the Effect of Gender on Perceptions of Peers

Dependent Variable	Males (*M*)	Females (*M*)	Significance
Concerned with their looks	2.61	3.14	*
Like to lift weights	2.71	2.09	*
Take sports supplements	1.82	1.57	*
Want big muscles	2.75	2.09	*
Are worried about their weight	2.21	3.02	*
Take steroids	1.35	1.24	*

* Significant at $p < .05$

Also, gender did not have a significant effect on respondents' decisions about the legitimacy of steroid and sports supplements use by Derrick, Jill and Mark as described in the three scenarios (see Figure 6). The percentage of males endorsing steroid use was always greater than the percentage of the females for Derrick (11.4% males compared to 6.9% females), Jill (8.8% males compared to 6.2% females), and Mark (12.1% males compared to 9.8% females). However, the great majority of respondents' disagreed that steroid use was appropriate in all three cases. Similar percentages of males and female respondents' agreed that sports supplements use was appropriate in these three situations (78% males compared to 76.3% females for Derrick, 70.7% males compared to 70.9% females for Jill, and 70% males compared to 67.7% females for Mark).

Figure 6. Gender differences in endorsing the use of steroids and sports supplements by Derrick, Jill and Mark (scenarios).



In summary, the gender effects show statistically significant differences in males and females perception of their own steroids and sports supplements behavior and the behavior of their peers. However, there were no male and female differences (except over the issue of steroids providing an unfair advantage for athletes) in attitudes towards steroid and sports supplements use in general and in specific scenarios. When seen within the context of the total distribution of responses, these differences do not seem of great practical significance. For example, on the question of future steroid use, the mean values for females and males both fall between the choices of “not likely,” and “very unlikely.” These are not differences of direction, and reinforce the general finding that the respondents’ reject the view that steroid use is a legitimate option in sports behavior and physical development.

The effect of school level (Junior High School (JHS) and High School (HS) on respondents' steroids and sports supplements behavior and attitudes

The relationship between level of school (Junior High School and High School) and respondents' steroids and sports supplements attitudes and behavior were examined by a series of one-way ANOVA's. The results are presented in Tables 10 and 11. These results show that school level was not a factor in respondents' perceptions of their own future steroids and current sports supplements behavior. Specifically, junior high school (JHS) and high school (HS) students did not differ significantly in how they said they currently use sports supplements, or in their future plans for steroid use. Neither was level of school related to any of the statements on the fairness and health issues surrounding sports supplements use. Level of school did affect respondents' attitudes towards fairness and health issues related to steroids. Specifically, junior high school and high school students differed significantly on three out of the five attitude statements on steroids. These were "using steroids is a form of cheating" (M_{JHS} = 1.91, M_{HS} = 2.18), "using steroids leads to health problems," (M_{JHS} = 1.77, M_{HS} = 1.97), and "taking steroids regularly is the same as having a drug problem," (M_{JHS} = 1.94, M_{HS} = 2.66). An examination of these mean values show that, although JHS students' had a more negative assessment of the health and fairness ramifications of steroid use than did HS students, these differences were not particularly substantive. For example, in the case of the largest mean difference (.70 for the issue of whether regular steroid use constitutes a drug problem), the junior high school students were much closer to "agree" than to "strongly agree," while the high school students were a little closer to "don't know" than to agree.

There were two significant school level effects when respondents assessed the characteristics of their peer group. In these statements respondents' chose the degree to which they thought that "kids you hang out with" were concerned about a number of corporeal issues using the following choices for each statement: "not at all," "some", "half," "more than half," and "all". The differences were on the statements about the degree to which respondents' thought their peers: "are concerned about how they look" (M_{JHS} = 2.70, M_{HS} = 2.92), and "like to lift weights" (M_{JHS} = 2.16, M_{HS} = 2.59). These differences may reflect the physical maturation that typically occurs between junior high school and high school. There were no school level differences for, "take sports supplements," "take steroids," "want big muscles," and "are worried about their weight."

Table 10

Means and One-way ANOVA Significances for Effect of School Level on Steroids and Sports Supplements Behavior and Attitudes

Behaviors and Attitudes	JHS (*M*)	HS (*M*)	Sig.
Steroids			
Future Steroid Use	4.50	4.57	NS
Steroids Unfair Advantage-athletes	1.97	2.13	NS
Steroids- a form of cheating	1.91	2.18	*
Steroids leads to health problems	1.77	1.97	*
Steroids are illegal	2.18	2.32	NS
Steroids same as drug problem	1.94	2.16	*
Sports Supplements (SS)			
Current SS Use	3.62	3.63	NS
SS Unfair Advantage-athletes	1.97	2.13	NS
SS- a form of cheating	1.91	2.18	*
SS leads to health problems	1.77	1.97	NS
SS are illegal	2.18	2.32	NS
SS same as drug problem	1.94	2.16	NS

* Significant at $p < .05$

Table 11

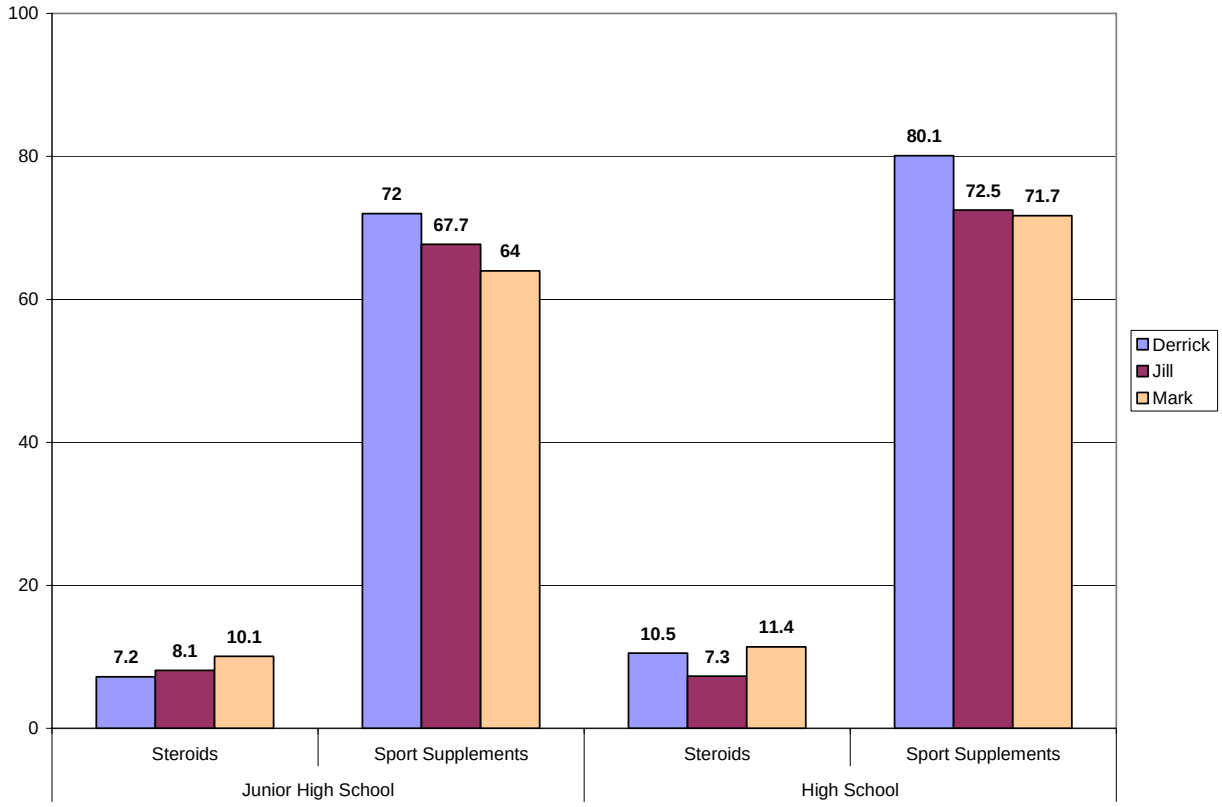
Means and One-way ANOVA Significance for the Effect of School Level on Perceptions of Peers

Dependent Variables	JHS (*M*)	HS (*M*)	Sig.
Concerned with their looks	2.70	2.92	*
Like to lift weights	2.16	2.59	*
Take sports supplements	1.74	1.69	NS
Want big muscles	2.47	2.46	NS
Are worried about their weight	2.59	2.58	NS
Take steroids	1.28	1.22	NS

* Significant at $p < .05$

School level also had no effect on respondents' decisions about the legitimacy of steroids and sports supplements use by Derrick, Jill and Mark as described in the three scenarios (see Figure 7). The percentage of high school students endorsing steroid use by Derrick and Mark was slightly greater than the percentage of the junior high school students (10.5% HS compared to 7.2% JHS for Derrick, and 11.4% HS compared to 10.1% JHS for Mark). For Jill it was the other way around (8.1% JHS compared to 7.3% HS). However, the great majority of respondents' disagreed that steroid use was appropriate in all three cases. Similar percentages of JHS and HS respondents' agreed that sports supplements use was appropriate in these three situations (72% JHS compared to 80.1% HS for Derrick, 67.7% JHS compared to 72.5% HS for Jill, and 64% JHS compared to 71.7% HS for Mark).

Figure 7. School level differences in endorsing the use of steroids and sports supplements by Derrick, Jill and Mark (scenarios).



In summary, the respondents generally made decisions about their future steroid use, their current sports supplements use, their attitudes towards steroids and sports supplements, and their assessment of their peers independent of school level. As with gender differences, level of school differences where not substantive. Respondents' in JHS and HS had similar views about steroids and sports supplements. They rejected

steroid use in the future, in specific sport and fitness situations, and with regard to fairness and health issues. They were less negative about using sports supplements in all these situations, and generally endorsed the use of sports supplements in specific sport and fitness scenarios.

The effect of clique structure on respondents' steroids and sports supplements behavior and attitudes

Respondents read the statement, "the group of kids I hang out with at school are most often described as …," and were asked to check one of the following categories: "preppies," "jocks," "regulars", "brains," "nerds/geeks," "troublemakers," "loners," "alternatives," and "others". Seventy nine percent of the respondents (*N* = 391) followed these directions. However, 9.9% of respondents (*N* = 49) chose 2 cliques, while a further 9.7% (*N* = 48) chose 3 or more cliques. The choices of these respondents may have been reflecting a common finding in clique research that, in some situations, clique membership is flexible and students can legitimately see themselves as members of several cliques. On the other hand, identification with one clique signifies a level of commitment that could affect attitudes and behavior. For this reason the researchers decided to use as the independent variable in the clique analysis the responses by students who had identified only one clique. The numbers in the different cliques identified by this group showed the following variation: 28 "preppies" (7.2%), 40 "jocks" (10.2%), 188 "regulars" (48.1%), 6 "nerds/geeks" (1.5%), 3 "loners" (.8%), 40 "troublemakers" (10.2%), 13 "brains" (3.3%), 15 "alternatives" (3.8%), and 58 "others" (14.8%). Because of the small numbers in the "nerds/geeks" and "loners" cliques, they were eliminated from the analysis. The "others" clique was also removed because most respondents who checked this category failed to name it.

A series of one-way ANOVA's were performed to identify the effect of clique membership on respondents' steroids behavior and attitudes, with LSD post hoc tests to identify significant clique differences. The results are given in Table 12. These results show a significant clique effect for respondents' projected steroid use and for some of their attitudes towards steroid use. Specifically, "troublemakers" and "alternatives" expressed a greater chance of taking steroids in the future than did all the other cliques. There were no other significant between-clique differences. There were no significant between-clique differences on the belief that steroids give athletes an unfair advantage, or on the belief that steroids are illegal. However, "troublemakers" were significantly less likely than "preppies," "regulars," "jocks" and "alternatives" to perceive steroid use as a form of cheating and to agree that steroid use leads to health problems. "Brains" were also significantly less likely than "regulars" and "jocks" to agree that steroid use leads to health problems. Finally, "troublemakers" were less likely to agree that using steroids is the same as having a drug problem than were "regulars," "preppies," and "jocks." Similarly, "brains" were less likely than "jocks" to agree with this statement.

Table 12

Means and One-way ANOVA Significance for Clique Effects on Steroids Behavior and Attitudes

	Means					
Dependent Variables	(P) Preppies	(J) Jocks	(R) Regulars	(T) Trouble-makers	(B) Brains	(A) Alternatives
Future Steroid Use [a]	4.68	4.74	4.68	4.28	4.69	4.20
Unfair Advantage-athletes [NS]	2.04	2.10	1.98	2.54	2.08	2.13
Steroids- a form of cheating [b]	2.11	1.90	2.03	2.82	2.58	1.87
Steroids leads to health problems [b, c]	1.81	1.75	1.83	2.62	2.46	1.93
Steroids are illegal [NS]	2.18	2.15	2.22	2.44	2.85	2.93
Steroids same as drug problem [d]	1.92	1.90	2.09	2.79	2.69	2.27

[a] T, A > P, J, R, B significant at $p < .05$

[b] T < P, J, R, A significant at $p < .05$

[c] B < J, R significant at $p < .05$

[d] T < P, J, R; B < J significant at $p < .05$

[NS] Non significant

The previous analyses showed the “troublemakers” to be the least “anti-steroid clique” with regard to projected steroid behavior and attitudes about steroid use. This trend was confirmed when the relationship between clique membership and answers to the steroid scenarios was examined. In all three cases the percentage of “troublemakers” agreeing that it was OK to use steroids was higher than the percentage in any other clique. This difference was not great in Jill’s case, where 11.1% (4 out of 36) of “troublemakers” agreed that it was OK for Jill to take steroids compared to 10.7% of the “preppies” (data not shown for these percentages). However, in Derrick’s case 21.6% (8 out of 29) of the “troublemakers” said it was OK for him to take steroids. This percentage was twice as high as the percentage in the “regulars” clique (10.6%, 19 out of 179) with the second highest percentage of “yes” choices. In Mark’s case 23.5% (8 out of 34) of the “troublemakers” agreed that it was OK for him to take steroids. The second-highest percentage of yes choices was found in the “brains” clique (15.4%, 2 out of 13). Because of the methodological constraints placed on the measurement of clique identity these numbers are small. However they do reinforce the difference between the “troublemakers” and the other cliques (with the exception of the “brains”).

A similar series of analyses to the previous set were performed to investigate the effect of clique membership on respondents' sports supplements behavior and attitudes. These results are given in Table 13. These results show that clique membership has no effect on current use of sports supplements, or on the belief that using sports supplements is the same as having a drug problem. Members of the "troublemakers" clique agree that sports supplements use gives athletes an unfair advantage in sports and are illegal to a lesser extent than do members of the "regulars" and "jock" clique. They also believe that sports supplements are a form of cheating to a lesser extent than do members of the "jock" and the "alternatives" cliques, and that sports supplements lead to health problems to a lesser extent than do members of the "regulars" clique. A review of the relationship between clique membership and attitudes towards the use of sports supplements by Derek, Jill and Mark did not show a consistent pattern.

Table 13

Means and One-way ANOVA Significance for Clique Effects on Sports Supplements (SS) Behavior and Attitudes

	Means					
Dependent Variables	(P) Preppies	(J) Jocks	(R) Regulars	(T) Trouble-makers	(B) Brains	(A) Alternatives
Current SS Use [NS]	4.25	3.80	3.75	3.90	3.40	3.82
Unfair Advantage-Athletes [a]	3.00	2.59	2.75	3.20	2.85	2.47
SS a form of cheating [b]	2.96	2.69	2.91	3.28	3.08	2.40
SS leads to health problems [c]	2.75	2.59	2.59	3.05	3.08	2.40
SS are illegal [a]	3.32	2.97	3.13	3.63	3.46	3.00
SS same as drug problem [NS]	3.18	2.82	2.95	3.35	3.00	2.73

[a] T < J, R significant at $p < .05$

[b] T < J, A significant at $p < .05$

[c] T < R significant at $p < .05$

[NS] Non significant

In summary, the differences in the way participants reacted to steroids compared to sports supplements shown in the descriptive statistics was reinforced in the clique analysis. Here, the clique effect was much stronger for projected steroid use and

attitudes toward steroids than it was for current sports supplement use and attitudes toward sports supplements. Specifically, there was less rejection of steroid use and less negative attitudes towards steroid use among the troublemakers clique compared to the others. In contrast, the jocks were one of the strongest cliques to reject future steroid use and agree that steroid use had negative implications for fairness and health. Part of this rejection could be related to the salience of steroids to jocks compared to cliques like brains and alternatives who were less likely to be involved in sports or to receive anti-steroid use education. Another factor might be that messages about the importance of steroid-free performance are being taken to heart by these athletes. Previous research on a large sample of high school and college athletes on Long Island (Rees, 2003, 2004) has shown widespread rejection of steroids as a viable option for sports participation. This does not mean that anti-steroid education programs for athletes should cease. However, the results do show that this education should be extended to groups like the troublemakers who are less negative about steroid use than others. Members of such groups are arguably less likely to listen to anti-steroid advice from adult teachers and coaches than are jock groups. Finally, the phrase “less negative about steroids” is important because members of the troublemakers group did not express positive views about steroid use. Although significantly different (statistically) from other groups, these views still leaned towards the negative.

Sports supplements as a "gateway" to steroid use

The relationship between students' current sports supplements as a "gateway" for steroid use in the future was examined through a series *variables entered* regression analyses. Specifically, three separate *variables entered* regression analyses (by all participants, males, and females) were conducted for the dependent variable *likelihood of using steroids in the future* (see Table 14). Separate regression analyses by gender were conducted because of the significant gender differences found in the one-way ANOVA analyses. The variables entered into each regression analysis were (1) current sports supplements use, (2) age, (3) grade in school, (4) participation in sport, (5) highest level of performance in their best sport, (6) number of sports played at school in past year, (7) number of sports played outside of school in past year, (8) number of days per week participating in aerobic activities, (9) number of days per week participating in flexibility activities, (10) number of days per week participating in muscle strength activities, (11) importance of having a good body, and (12) worry about what other people think about my body. Results of the regression analysis including all participants (N = 396) revealed that the 12-variable model has low, but significant predictive value (adjusted R^2 = .82, F (12, 383) = 4.10, p < .00). Model variables that achieved significant t-values (p < .05) were current sports supplements use (r = .24; β = .23), age (r = .04, β = -.34), grade in school (r = .07; β = .40), and number of days per week participating in flexibility exercises (r = .30; β = .16). That is, students who are currently using one or more sports supplements are more likely to use steroids in the future than those who are not currently taking sports supplements. As students advance in school grade, they are more likely to use steroids in the future. Also, students who engage in little to no flexibility or stretching exercises are more likely to

use steroids in the future. These findings, particularly for current sports supplements use, provide support for Yessalis' suggestion that steroid use "always starts with supplements" (as cited in Farrey, 2000).

Analysis of male participants (N = 217) also indicated that the 12-variable model has low, but significant predictive value (adjusted R^2 = .88, F (12, 204) = 2.73, p < .00). While model variables achieving significant t-values (p < .05) for the male participants were somewhat similar to the analysis of all participants - current sports supplements use (r = .23; β = .18), and grade in school (r = .11; β = .47), one additional variable emerged - *worry about what other people think about my body* (r = -.18; β = -.18). That is, male students who are currently using one or more sports supplements are more likely to use steroids in the future than those who are not currently taking sports supplements. As male students advance in grade level, they are more likely to use steroids in the future. In addition, the more male students worry about what other people think about their body, the more likely they are to use steroids in the future. Again, for male students, the results regarding current sports supplements are consistent with Yessalis (as cited in Farrey, 2000).

However, analysis of female participants (N = 177), showed that the 12-variable model does not predict the likelihood of future steroid use for girls, (adjusted R^2 = .04, F (12, 164) = 1.57, p = .11), but current sports supplements use was emerging as a significant predictor (β = .30, t = 3.81, p < .00).

Cross-tab analyses were conducted to assess student's who currently use sports supplements attitude toward (or acceptance of) Derrick, Jill, and Mark's use of steroids. Twenty (20%) of the 100 students currently using sports supplements also reported that it is OK for Derrick (high school linebacker) to use steroids. Additional cross-tab analysis of the qualitative responses given by participants currently using sports supplements *and* state that it is OK for Derrick to use steroids was conducted. These students' responses in support of Derrick's use of steroids emerge into four themes. First, they support Derrick's use of steroids to improve his sport fitness and performance. Responses within this theme include *"Because he'll get better", "He needs to be big"*, and "*He wants to look better so it's OK to use steroids to help him out."* Participants who were in support of Derrick's sport career aspirations gave responses such as *"He can get a scholarship", "He uses them so he will have a better chance to get into college", "He will have a shot in a career in sports",* and *"It would be important for him to get a college football scholarship he would have to take risks."* Improved social status was evidenced by responses such as *"He is a cool guy and his whole life is ahead of him"* and *"makes [Derrick] look cool."* However, there were students who expressed ambivalence or lacked concern for Derrick's use of steroids. Here students gave comments such as *"I am in the middle. Yes, because he wants to and no because it's illegal", "Just make sure [Derrick] doesn't over use them,"* and *"It's his decision. I really don't care about his life."*

Table 14.

β-weights and Pearson Correlation Coefficients of the 12-variable Entered Regression Analyses with "How likely is it that you will use steroids in the future" as the Dependent Variable

	All Participants (N = 396)		Males (N = 217)		Females (N = 177)	
	β	*r*	*β*	*r*	*β*	*r*
Current use of one or more sports supplements	0.23**	0.24	0.18*	0.22	0.30**	0.26
Age	-0.34*	0.04	-0.42	0.05	-0.14	0.04
Grade	0.40*	0.07	0.47*	0.10	0.21	0.04
Participate in sports	-0.04	-0.06	0.03	-0.04	-0.08	-0.02
Highest level of performance in best sport	0.01	-0.04	-0.07	-0.07	0.06	0.02
Number of sport teams played on at school this past year	-0.08	-0.07	-0.07	-0.08	-0.10	-0.04
Number of sport teams played on outside of school this past year	0.04	-0.02	0.02	-0.03	0.08	0.05
Number of days per week participate in cardio/aerobic exercise	-0.07	-0.12	-0.04	-0.14	-0.11	-0.05
Number of days per week participate in flexibility exercise	0.16*	0.03	0.10	0.02	0.13	0.01
Number of days per week participate in strength training exercise	-0.08	-0.13	-0.12	-0.19	0.04	0.01
Importance of having a good body	0.10	0.02	0.08	-0.03	0.11	0.06
Worry about what other people think about my body	-0.09	-0.07	-0.18*	-0.18	0.00	-0.01

* $p < .05$

** $p < .000$

In the case of Jill (the cheerleader), 17 (17.5%) of 97 students who currently use sports supplements also reported that it is OK for her to use steroids. Cross-tab analysis of these students' qualitative responses revealed themes similar to those for Derrick's case. Participants approved of Jill's use of steroids to improve her sport performance and appearance with statements such as, *"because she needs the athletic edge",*

because she will get buff", and *"Yes, to help her become her best."* Steroid use was also condoned to support Jill's sport career aspirations where students stated, *"She is using them to have a better chance to get a scholarship"* and *"She should do what it takes to achieve her goal."* One respondent seemed to approve of Jill's use of steroid for safety reasons - *"so she won't drop anyone."* However, there were students who lacked concern for Jill's use of steroids. These students gave responses such as, *"Her life. I don't care."* and *"Let her do what she wants to do."*

In Mark's case (the overweight 15-year old bully victim), 18 (18.8%) of 96 students who currently use sports supplements also reported it was OK for Mark to use steroids. Cross-tab analysis of these students' qualitative responses was somewhat different from those given for Jill and Derrick. Concern for Mark's personal welfare was given as reason for him to use steroids - *"because he won't get picked on"* and *"so he can beat their asses."* Several participants supported Mark's use of steroids so that he may gain social status - *"It will make him more tough and popular"* and *"He wants to be popular with big muscles."* Other participants expressed that because Mark would not be using steroids for sport performance purposes it was more acceptable; however their responses were not in full support of Mark's steroid use. These responses included, "*He's fat. He wants to get skinnier, but it's still not fair"* and *"Well, if he's not competing in any sports, it's not cheating. But, he's still probably harming his body."*

In summary, current use of sports supplements, along with additional variables, is predictive of students' likelihood to use steroid in the future. Also, girls and boys have different factors influencing their likelihood to use steroids. However, the low, significant regression values achieved in these analyses indicate there are factors that were not tested in this study that also influence students' attitudes toward the use of steroids. Analysis of participants' qualitative responses indicates there are several reasons (e.g., to improve sport performance, to secure an intercollegiate sport scholarship, to improve social status, to deter bullies) students who regularly take sports supplements may cite to condone the use of steroids, and that the details of the case (sport vs. non-sport scenario) are important information they consider when making judgments.

Profile of future steroid users

As a final component of the analysis the researchers decided to develop a descriptive profile of future steroid users. These were the 17 respondents (3.5% of the total sample) who chose the "very likely" response in answer to the question, "How likely is it that you will use steroids in the future?" The other choices were: "likely," "somewhat likely (50-50 chance)," "not likely," and "very unlikely." The profile was based on their answers to questions that have formed the basis of the previous results, and several questions about interest in sport and physical fitness. Consistency and diversity of responses, depending on which variables were considered, characterize the profile. For example, whereas 13 respondents were male and 3 were female, they were almost equally distributed between JHS (N = 8) and HS (N = 9). There was no pattern of clique identity among these respondents. Two respondents chose the "regulars" clique, there

was one respondent only from the “jocks”, “troublemakers,” brains,” and “alternates,” and 7 from the “others.” The other three respondents did not identify their clique membership.

Nine of the respondents said they were “very much” involved in sports, and 10 chose starting on their school or club teams, travel team, or regional/state level as their highest level of performance in their best sport. However, 4 respondents said they did not play on sports teams. A similar variation was found in these respondents’ description of their exercise habits. Nine respondents chose 7 days, 3 chose 6 days, and 1 chose 5 days as answers to the question: “How many days did you exercise or participate in physical activity for at least 20 minutes that made you sweat and breathe hard last week?” However, 2 respondents chose 4 days, another 3 days, and a third chose 0 days. Similar variations in choice occurred in answer to the question: “How many days did you do exercises to strengthen and tone your muscles last week?” Twelve respondents’ chose 5, 6, or 7 days, 4 respondents chose between 1 and 3 days, while one respondent chose 0 days. Eight respondents’ said that “having a good body” was “very important “ to them, 1 felt it was “important,” 5 felt it was “somewhat important,” and 3 felt it was “not at all important.” Respondents’ answers to the question about whether they “worry about what other people think about your body” varied from “I never worry” (N = 7) to “I always worry” (N = 3), with 6 respondents in between. Six respondents described their weight as “about right,” 2 respondents said they were “slightly underweight,” 6 said they were “slightly overweight,” and 2 said they were “very overweight.” The respondents provided a variety of reasons for why they would take steroids in the future. Four respondents said they would take steroids to “gain weight,” 2 to “gain muscle size,” 1 to “gain strength,” 1 “for energy,” 3 to “play sports better,” 1 to “look better,” 1 because “it’s exciting,” and 1 because he/she “like(s) to take risks.” Two respondents were “not sure” why they would take steroids in the future. There was more consistency in the respondents’ description of their current sports supplements behavior. Twelve respondents said that they “currently take them on a regular basis,” two respondents’ chose the answer “No, but I have tried them once or twice,” and 3 chose the answer “No, I have never tried them.”

The 17 respondents’ attitudes towards fairness and health issues surrounding steroid use were also varied. Between 11 and 8 respondents either agreed or strongly agreed that steroid use was wrong in the five health and fairness statements, but between 6 and 4 respondents either disagreed or strongly disagreed. The majority of respondents’ (between 12 and 8 depending on the statement) also agreed that using sports supplements was wrong in these situations, however between 3 and 4 respondents either disagreed or strongly disagreed. Most respondents rejected steroids as a legitimate option in the three scenarios (N = 13 for Derrick, N = 15 for Jill, and N = 13 for Mark), while a minority (N = 4 for Derrick, N = 2 for Jill, and N = 3 for Mark) felt that steroid use was OK. Sports supplements use in these scenarios was generally accepted, with the majority of the respondents’ endorsing their use (N = 13 for Derrick, N = 11 for Jill, and N = 9 for Mark), and the minority rejecting their use (N = 4 for Derrick, N = 6 for Jill, and N = 6 for Mark).

This profile suggests that the respondents who saw steroid use as very likely in their future were more likely to be male than female, and were likely to be taking sports supplements regularly. The majority of respondents' were involved in sports at the varsity level or higher. However, their attitudes towards steroids and sports supplements use both generally and in specific scenarios were not uniform, the importance of their bodies and their exercise habits were varied, as was their clique identity. From a research perspective it is "inconvenient" that these respondents did not fit themselves into the categories created by researchers. Yet this profile does illustrate the reality (at least for this sample of adolescents) that potential steroid users have a broad spectrum of corporeal interests and attitudes, not just an involvement in sports and bodybuilding.

SUMMARY AND SUGGESTIONS

This study examined intermediate and high school students' attitudes toward and behavior regarding steroids and sports supplements use with a sample of junior high school and high school students from Nassau and Suffolk Counties on Long Island, New York. Behavior was measured by questions about respondents' future steroid use, and current sports supplements use. Attitudes were measured through respondents' reactions to whether it was appropriate for their peers and themselves to use steroids and sports supplements in a variety of corporeal situations, and the degree to which use of these substances impacted fairness and health issues. Respondents' also decided whether the use of steroids and sports supplements was legitimate in three specific scenarios involving fictitious male and female high school students, and gave reasons for their decisions. The respondents' answers and choices were described and assessed for the effect of gender and level of school (junior high school and senior high school). The effect of their clique identity on steroids and sports supplements attitudes and behavior was also assessed. The potential relationship between sports supplements and steroid use was described, and finally a profile presented of the respondents who predicted that they would be very likely to use steroids in the future.

The most consistent finding in the descriptive phase of the results was the negative reaction to steroid use by the great majority of respondents. Steroid use was perceived as inappropriate across all the descriptive measures, for respondents' own behavior, the behavior of their peers, for specific fairness and health issues, and in the fictitious athletic and fitness scenarios. This rejection of steroid use was made independent of gender and level of school, although a small but statistically significant age effect was found. While some statistically significant male and female differences were found, these were differences of degree not differences in direction. Specifically, male and female participants never differed in their endorsement of steroid use (i.e., one group in favor and the other group against), only in the degree to which they felt that steroid use was wrong. Differences of degree also characterized the few differences between junior high school and high school participants. The negative attitudes about steroid use were also reflected in the clique analysis. This analysis showed some clique effects but no differences in direction. Members of the "jock" and "regular' cliques expressed the

most negative views about steroid use, while members of the “troublemakers” group expressed the least negative views.

Respondents’ sports supplements behavior and attitude showed much more variation than in the analyses for steroids. While the majority of respondents tended to disagree with the use of sports supplements by their peers in a variety of situations, and agree that using sports supplements would compromise fairness and health issues, there was a much wider spread in the distributions of the scores than with the responses to steroid use. There was also a trend for respondents’ to attribute the same reasons for steroids and sports supplements in their own future use, and use by their peers. In the specific scenarios, respondents’ generally gave opposite reactions to steroids and sports supplements, rejecting the legitimacy of steroid use but endorsing the use of sports supplements. In the responses to these scenarios the use of sports supplements was often supported for the same reason that had caused steroid use to be rejected. The effect of gender, school level and clique identity on respondents’ attitudes to sports supplements use was marginal. This ambivalent relationship between respondents’ behavior and attitudes towards steroids and their behavior and attitudes towards sports supplements was increased by the fact that respondents’ current level of sports supplements use was one of the few predictors of their future steroid use.

The rationale for this study developed from large-scale survey research results suggesting that a wider variety of adolescents might be experimenting with steroids at an earlier age than has previously been the case. These changes may be leading to a greater acceptance by adolescents that steroid use is legitimate in the quest for a success in sports and physical fitness. In other words, steroids were seen as part of the “cosmetic” fitness approach (that the result of a “good” body is more important than the means by which it is attained) to physical fitness, and as an acceptable “short cut” to sports success. Adolescents might also be attracted to steroid use as part of the culture of risk that is growing in popularity in adolescent groups (Kindlundh et al., 1999; Rojek, 2000), and is now a common “commodity” for public consumption (Blackshaw & Crabbe, 2004). Could certain cliques that adolescents rely on as part of their identity development help to legitimize or marginalize steroids use and attitude?

This study provided no evidence to support the notion that steroid use was acceptable to the adolescent respondents, and our results provided no support for their attraction to a culture of risk. On the contrary, a general condemnation of steroid use and negative attitudes towards steroids by the vast majority of respondents’ characterized our results. However, the percentage of our sample that said they would use steroids in the future (between 3.5% and 7.7% depending upon how the response to this question is interpreted) does fall within the range described in the large nationally representative samples (Yesalis et al., 2000). Within the context of this rejection of steroids, small but statistically significant clique differences did occur, implying that the role of cliques should continue to be the subject of research on steroids and sports supplements attitudes and behaviors. Because respondents’ sometimes chose the category labeled “other” in our study, future researchers on clique identity should ascertain the clique structure specific to the school in which the study takes place. This suggestion implies

the importance of “insider” knowledge, and consequently points to a more qualitative research approach with several schools rather than the predominantly quantitative approach used in this study. However, if steroid behavior and attitudes is the subject of an in-depth study, the researchers are likely to meet more resistance from school administrators and coaches and less access to students’ responses that was encountered in this study.

Whatever the theoretical focus, the subject of sports supplements use is a fruitful topic for research on adolescents. The results of this study show that respondents used supplements more widely than steroids, had a greater variety in attitudes towards their use, and a wide acceptance for their “energy” potential. Future research in on this topic might try to differentiate between types of supplements (e.g., sports drinks versus creatine), and continue to explore and refine the steroids/sports supplements connections discovered in this study.

Finally, the practical implications of this research were based on the belief that anti-steroid education needs to adapt to the changing face of adolescent steroid users. The results of this study suggest that sports supplement use should also be included within anti-steroid education programs. Based upon the results of this study, adolescents may reject steroid use, but see sports supplements as an acceptable alternative in the pursuit of specific sports and fitness goals, without much knowledge about the effects of these substances on physical performance and health. Given the attention paid to sport and exercise in the media, and the importance of physical appearance and body image to adolescence, some guidance on how to avoid the problems associated with such cosmetic fitness needs to be given to adolescence. This guidance could be part of the junior high school and high school curricula. However, because the subject is salient to the members of different cliques, some of which may not want to take much notice of what adults tell them (e.g., the “troublemakers” clique in this study), curriculum planning should prioritize individual involvement with the subject matter that focuses on life skill development. For example, a series of interactive modules on physical health could be developed in which students could investigate for themselves the effects of their diet, exercise habits, and use of drugs on their own physical health. Such an approach may have more chance of helping students bring about proactive changes in their life styles than the more common lecture format.

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Appendix A

Dear Student,

This survey has been developed by the Sports Leadership Institute at Adelphi University to gather information about sport supplement attitudes and beliefs among Long Island school children and adolescents. Your participation is voluntary and will not affect your grade in any way. There are no wrong or right answers; we are interested in your opinions. All information given will be kept strictly confidential by the study's investigator. Your completed questionnaires will not be shared with your parents, teachers, coaches, or any other school administrator. You will not be identified by your name or grade. To protect your identity and maintain confidentiality in your responses, please DO NOT WRITE YOUR NAME ON ANY OF THESE PAGES.

Age: _____ years **Grade:** _____ **Gender:** ❑ Male ❑ Female

Race / Ethnicity: (check one)

- ❑ African-American/Black
- ❑ Asian-American
- ❑ Caucasian/White
- ❑ Hispanic-American/Latino
- ❑ Multi-ethnic
- ❑ Native American/Indian
- ❑ Pacific Islander
- ❑ Other (specify) _____

1. Do you participate in sports? (check one) ❑ Not At All ❑ Somewhat ❑ Very Much

2. List the sport(s) you are involved in (in order of importance to you).
   1. _____
   2. _____
   3. _____
   4. _____
   5. _____

3. What is your highest level of performance in your best sport? (check one)
   - ❑ I don't play on a sports team.
   - ❑ Substitute - school or club team
   - ❑ Starter - school or club team
   - ❑ Travel Team
   - ❑ Regional/State Level
   - ❑ Other: _____

4. How many sport teams did you play on at school this past year (do not include PE classes)? _____

5. How many sport teams did you play on outside your school (like a club or league) this past year? _____

6. The group of kids I hang out with at school are most often described as… (check one)
   - ❑ preppies
   - ❑ nerds/geeks
   - ❑ brains
   - ❑ jocks
   - ❑ loners
   - ❑ alternatives
   - ❑ regulars
   - ❑ troublemakers
   - ❑ other _____

7. How many days did you exercise or participate in physical activity for at least 20 minutes that made you sweat and breathe hard last week (like basketball, soccer, running, swimming laps, fast bicycling, fast dancing or similar aerobic activities)? (check one)

❑ 0 days	❑ 4 days
❑ 1 days	❑ 5 days
❑ 2 days	❑ 6 days
❑ 3 days	❑ 7 days

8. How many days did you do stretching exercises last week (like toe touching, knee bending, or leg stretching)? (check one)

❑ 0 days	❑ 4 days
❑ 1 days	❑ 5 days
❑ 2 days	❑ 6 days
❑ 3 days	❑ 7 days

9. How many days did you do exercises to strengthen or tone your muscles last week (like push ups, sit ups or weight lifting)? (check one)

❑ 0 days	❑ 4 days
❑ 1 days	❑ 5 days
❑ 2 days	❑ 6 days
❑ 3 days	❑ 7 days

10. How do you describe your weight? (check one)
    - ❑ about the right weight
    - ❑ slightly underweight
    - ❑ very underweight
    - ❑ slightly overweight
    - ❑ very overweight

11. Which of the following are you trying to do about your weight? (check one)
    - ❑ I am not trying to do anything about my weight
    - ❑ Stay the same weight
    - ❑ Gain weight
    - ❑ Lose weight

12. How important is having a good body to you? (check one)
    - ❑ Not at all important
    - ❑ Somewhat important
    - ❑ Important
    - ❑ Very Important

13. Do you worry about what other people (friends, family members, strangers) think about your body? (check one)
    - ❑ I never worry about what other people think about my body.
    - ❑ I sometimes worry about what other people think about my body.
    - ❑ I oftentimes worry about what other people think about my body.
    - ❑ I always worry about what other people think about my body.

Read each of the following questions and circle the diamond (◆) that describes your thoughts. There are no right or wrong answers. Do not spend too much time on any one question, but choose the answer which describes your thoughts about the kids you hang out with.

How many of the kids you hang out with...		**None At All**	**Some**	**Half**	**More Than Half**	**All**
14.	are concerned about how they look?	◆	◆	◆	◆	◆
15.	like to lift weights?	◆	◆	◆	◆	◆
16.	take sports supplements?	◆	◆	◆	◆	◆
17.	take steroids?	◆	◆	◆	◆	◆
18.	want big muscles?	◆	◆	◆	◆	◆
19.	are worried about their weight?	◆	◆	◆	◆	◆

20. How likely is it that you will use steroids in the future? (Check only one answer)
    - ❑ Very likely
    - ❑ Likely
    - ❑ Somewhat likely (50-50 chance that I will use steroids in the future)
    - ❑ Not likely
    - ❑ Very unlikely

21. If you were to use steroids in the future, what would be your reason for taking steroids? (Check all that apply.)
    - ❑ Gain weight
    - ❑ Gain muscle size
    - ❑ For energy
    - ❑ General health reasons
    - ❑ It's exciting
    - ❑ Look better
    - ❑ Lose weight
    - ❑ Play sports better
    - ❑ Lose body fat (get cut)
    - ❑ Pressure from others
    - ❑ Curious about drugs
    - ❑ To be a part of my group
    - ❑ Gain strength
    - ❑ Not sure
    - ❑ Like to take risks
    - ❑ Other _____

22. Do you take one or more sports supplements (like Red Bull, mega-vitamins, protein shakes, diet pills, creatine, Hot Stuff, Andro,)? (Check only one answer)

- ❑ Yes, I currently take them on a regular basis. (If yes, please answer question 23)
- ❑ No, but it is likely that I will use sports supplements in the future. (If so, please answer question 24)
- ❑ No, I used to take them but stopped.
- ❑ No, but I have tried them once or twice.
- ❑ No, I have never tried them.

23. If you answered YES to question #22, what is your reason for taking sports supplements (like creatine, Hot Stuff, Andro, Red Bull, mega-vitamins, protein shakes, diet supplements)? (Check all that apply)

- ❑ Gain weight
- ❑ Gain muscle size
- ❑ For energy
- ❑ General health reasons
- ❑ It's exciting
- ❑ Look better
- ❑ Lose weight
- ❑ Play sports better
- ❑ Lose body fat (get cut)
- ❑ Pressure from others
- ❑ Curious about drugs
- ❑ To be a part of my group
- ❑ Gain strength
- ❑ Not sure
- ❑ Like to take risks
- ❑ Other _____

24. If you were to use sports supplements in the future, what would be your reason for taking them? (Check all that apply)

- ❑ Gain weight
- ❑ Gain muscle size
- ❑ For energy
- ❑ General health reasons
- ❑ It's exciting
- ❑ Look better
- ❑ Lose weight
- ❑ Play sports better
- ❑ Lose body fat (get cut)
- ❑ Pressure from others
- ❑ Curious about drugs
- ❑ To be a part of my group
- ❑ Gain strength
- ❑ Not sure
- ❑ Like to take risks
- ❑ Other _____

Read each of the following statements and circle the diamond (◆) that describes your thoughts. There are no right or wrong answers. Do not spend too much time on any one statement, but choose the answer which describes your thoughts about **steroids** *right now*.

	Strongly Agree	Agree	I don't know	Disagree	Strongly Disagree
25. Steroids give athletes an unfair advantage in sports.	◆	◆	◆	◆	◆
26. Using steroids is a form of cheating.	◆	◆	◆	◆	◆
27. Using steroids leads to health problems.	◆	◆	◆	◆	◆
28. Steroids are illegal.	◆	◆	◆	◆	◆
29. Taking steroids regularly is the same as having a drug problem.	◆	◆	◆	◆	◆

Kids my age use steroids because…		Strongly Agree	Agree	I don't know	Disagree	Strongly Disagree
30.	they want to look good	◆	◆	◆	◆	◆
31.	they want to lose body fat (get cut)	◆	◆	◆	◆	◆
32.	they want to do better in sports	◆	◆	◆	◆	◆
33.	it makes them popular	◆	◆	◆	◆	◆
34.	they want to gain strength	◆	◆	◆	◆	◆
35.	they want to have bigger muscles	◆	◆	◆	◆	◆
36.	it is in their medication	◆	◆	◆	◆	◆
37.	they want to gain weight	◆	◆	◆	◆	◆
38.	they were pressured by others	◆	◆	◆	◆	◆
39.	it's exciting	◆	◆	◆	◆	◆
40.	they like to experiment with drugs	◆	◆	◆	◆	◆
41.	they like to take risks	◆	◆	◆	◆	◆
42.	they want to lose weight	◆	◆	◆	◆	◆
43.	they want to gain energy	◆	◆	◆	◆	◆
44.	they want to be a part of the group	◆	◆	◆	◆	◆
45.	they are tested by scientists	◆	◆	◆	◆	◆
46.	they are safe	◆	◆	◆	◆	◆
47.	professional athletes take them	◆	◆	◆	◆	◆

It is OK for kids my age to use <u>steroids</u> when…		**Strongly Agree**	**Agree**	**I don't know**	**Disagree**	**Strongly Disagree**
48.	they want to look good	◆	◆	◆	◆	◆
49.	they want to lose body fat (get cut)	◆	◆	◆	◆	◆
50.	they want to do better in sports	◆	◆	◆	◆	◆
51.	it makes them popular	◆	◆	◆	◆	◆
52.	they want to gain strength	◆	◆	◆	◆	◆
53.	they want to have bigger muscles	◆	◆	◆	◆	◆
54.	it is in their medication	◆	◆	◆	◆	◆
55.	they want to gain weight	◆	◆	◆	◆	◆
56.	they are pressured by others	◆	◆	◆	◆	◆
57.	it's exciting	◆	◆	◆	◆	◆
58.	they like to experiment with drugs	◆	◆	◆	◆	◆
59.	they like to take risks	◆	◆	◆	◆	◆
60.	they want to lose weight	◆	◆	◆	◆	◆
61.	they want to gain energy	◆	◆	◆	◆	◆
62.	they want to be a part of the group	◆	◆	◆	◆	◆
63.	they are tested by scientists	◆	◆	◆	◆	◆
64.	they are safe	◆	◆	◆	◆	◆
65.	professional athletes take them	◆	◆	◆	◆	◆

Read each of the following statements and circle the diamond (◆) that describes your thoughts. There are no right or wrong answers. Do not spend too much time on any one statement, but choose the answer which describes your thoughts about **sports supplements** (like Red Bull, mega-vitamins, protein shakes, diet pills, creatine, Hot Stuff, Andro,) *right now*.

	Strongly Agree	Agree	I don't know	Disagree	Strongly Disagree
66. Sports supplements give athletes an unfair advantage in sports.	◆	◆	◆	◆	◆
67. Using sports supplements is a form of cheating.	◆	◆	◆	◆	◆
68. Using sports supplements leads to health problems.	◆	◆	◆	◆	◆
69. Sports supplements are illegal.	◆	◆	◆	◆	◆
70. Taking sports supplements regularly is the same as having a drug problem.	◆	◆	◆	◆	◆

Kids my age use sports supplements because…		Strongly Agree	Agree	I don't know	Disagree	Strongly Disagree
71.	they want to look good	◆	◆	◆	◆	◆
72.	they want to lose body fat (get cut)	◆	◆	◆	◆	◆
73.	they want to do better in sports	◆	◆	◆	◆	◆
74.	it makes them popular	◆	◆	◆	◆	◆
75.	they want to gain strength	◆	◆	◆	◆	◆
76.	they want to have bigger muscles	◆	◆	◆	◆	◆
77.	it is in their medication	◆	◆	◆	◆	◆
78.	they want to gain weight	◆	◆	◆	◆	◆
79.	they are pressured by others	◆	◆	◆	◆	◆
80.	it's exciting	◆	◆	◆	◆	◆
81.	they like to experiment with drugs	◆	◆	◆	◆	◆
82.	they like to take risks	◆	◆	◆	◆	◆
83.	they want to lose weight	◆	◆	◆	◆	◆
84.	they want to gain energy	◆	◆	◆	◆	◆
85.	they want to be a part of the group	◆	◆	◆	◆	◆
86.	they are tested by scientists	◆	◆	◆	◆	◆
87.	they are safe	◆	◆	◆	◆	◆
88.	professional athletes take them	◆	◆	◆	◆	◆

It is OK for kids my age to use <u>sports supplements</u> when…		**Strongly Agree**	**Agree**	**I don't know**	**Disagree**	**Strongly Disagree**
89.	they want to look good	◆	◆	◆	◆	◆
90.	they want to lose body fat (get cut)	◆	◆	◆	◆	◆
91.	they want to do better in sports	◆	◆	◆	◆	◆
92.	it makes them popular	◆	◆	◆	◆	◆
93.	they want to gain strength	◆	◆	◆	◆	◆
94.	they want to have bigger muscles	◆	◆	◆	◆	◆
95.	it is in their medication	◆	◆	◆	◆	◆
96.	they want to gain weight	◆	◆	◆	◆	◆
97.	they were pressured by others	◆	◆	◆	◆	◆
98.	it's exciting	◆	◆	◆	◆	◆
99.	they like to experiment with drugs	◆	◆	◆	◆	◆
100.	they like to take risks	◆	◆	◆	◆	◆
101.	they want to lose weight	◆	◆	◆	◆	◆
102.	they want to gain energy	◆	◆	◆	◆	◆
103.	they want to be a part of the group	◆	◆	◆	◆	◆
104.	they are tested by scientists	◆	◆	◆	◆	◆
105.	they are safe	◆	◆	◆	◆	◆
106.	professional athletes take them	◆	◆	◆	◆	◆

Read the following story about Derrick and answer questions 107 and 108.

Derrick is a high school linebacker with the potential to get a college football scholarship. He is not very tall, only 5 feet and 7 inches, and does not weigh very much, only 150 pounds. During the summer between his junior and senior year, Derrick begins a tough weight-lifting routine. He also started to use steroids that he bought from a person at a local gym. By pre-season practice, Derrick has greatly increased his strength and now weighs 175 pounds.

107. Is it OK for Derrick to use steroids? ❑ YES ❑ NO (check one)
If yes, explain why you think so. If no, explain why you think so.

108. Is it OK for Derrick to use sports supplements (like protein shakes, Red Bull, mega-vitamins, creatine, Hot Stuff, Andro)? ❑ YES ❑ NO (check one)
If yes, explain why you think so. If no, explain why you think so.

Read the following story about Jill and answer questions 109 and 110.

Jill is a top cheerleader on her high school team that is known for its difficult gymnastics and pyramid routines. The team has also won several state titles. Jill has set her sights on a college cheerleading scholarship but is worried that she needs greater strength and a more defined, "hard body" to achieve her goal. She begins using steroids to get the strength and body shape she wants.

109. Is it OK for Jill to use steroids? ❑ YES ❑ NO (check one)
If yes, explain why you think so. If no, explain why you think so.

110. Is it OK for Jill to use sports supplements (like protein shakes, Red Bull, mega-vitamins, creatine, Hot Stuff, Andro)? ❑ YES ❑ NO (check one)
If yes, explain why you think so. If no, explain why you think so.

Read the following story about Mark and answer questions 111 and 112.

Mark is 15 years old, a little bit overweight, and not interested in sports. Mark would probably call himself a bit of a "burnout" and is sometimes bullied by bigger and older boys who hang out with other groups. So, Mark gets into weight-lifting in a big way, but still cannot get the body he wants. Finally, Mark turns to steroids to give him that extra edge to gain strength.

111. Is it OK for Mark to use steroids? ❑ YES ❑ NO (check one)
If yes, explain why you think so. If no, explain why you think so.

112. Is it OK for Mark to use sports supplements (like protein shakes, Red Bull, mega-vitamins, creatine, Hot Stuff, Andro)? ❑ YES ❑ NO (check one)
If yes, explain why you think so. If no, explain why you think so.

Thank you for completing this questionnaire.

Appendix B

ADELPHI UNIVERSITY
1 SOUTH AVE • GARDEN CITY, NY 11530-4299

Department of Health Studies,
Physical Education and Human
Performance Science
Tel. 516 877 4260
Fax 516 877 4258

A NOTE TO PARTICIPATING SCHOOLS

Project Title: Intermediate and high school students' attitudes toward and behavior regarding steroids and sports supplements use: The mediation of clique identity. A study funded by the World Anti-Doping Agency (WADA).

Investigators: C. Roger Rees, Ph.D., Emilia Patricia Zarco, M.D., and Dawn K. Lewis, Ph.D.
Department of Health Studies, Physical Education and Human Performance Science,
Adelphi University, Garden City, NY 11530

Dear Colleagues,

Thank you very much for your involvement in this research project. We are collecting data from 6th, 7th, 11th, and 12th grade students in several school districts on Long Island. To protect the anonymity of the schools and the school districts who participate in this study, we guarantee the following:

1. The investigators will not reveal the identity of the schools and the school districts from which the data are collected.

2. The investigators will not report any analysis of the data in which individual schools or school districts are identified and compared in any public reports, presentations or publications.

3. The investigators will provide each school a summary of study results for its school only.

Please do not hesitate to contact me if you have any further questions regarding your rights as a participating school and school district in this study.

Yours Sincerely,

C. Roger Rees, Ph.D.
Principal Investigator
(516) 877 4269 (office)
(516) 877 4258 (fax)
rees@adelphi.edu

attachments: consent forms, questionnaire

Appendix C

CONSENT TO PARTICIPATE VOLUNTARILY IN A SURVEY

Department of Health Studies, Physical Education and Human Performance Science
Adelphi University, Garden City, NY 11530

Investigators: C. Roger Rees, Emilia Patricia Zarco and Dawn K. Lewis

Respondent's Name: _____ Date: _____

You are being asked to participate in a survey project. This survey has been developed by the Sports Leadership Institute at Adelphi University about attitudes toward and behaviors regarding steroids and other sports supplements. You will be asked questions about your athletic and exercise experience, your attitudes toward and beliefs and values regarding the use of steroids and other sport supplements. There are no wrong or right answers, we are interested in your opinion.

Your participation in this project is voluntary and will not affect your grade in any class. You are under no obligation to be a participant and, if at any time, you do not feel comfortable with a question being asked, you may skip the item or withdraw from the study without any penalty or punishment. It will take approximately 30-40 minutes to complete the survey questions. You may ask the survey administrator any questions you may have to help you understand the questions.

All information given will be kept strictly confidential by the study's investigators. Your privacy will be protected to the maximum extent allowable by law. You will not be identifiable in any report of this research study. Your completed questionnaires will not be shared with your parents, teachers, coaches, or any other school administrator. You will not be identified by your name or grade. Only group data will be presented in write-ups and discussions of this study. To protect your identity and maintain confidentiality in your responses, do not write your name on the questionnaires. You will be assigned a code to use on questionnaires to protect your identity. Results of the study may be made available to you upon request and within the restrictions outlined on this form.

Further information about this project can be addressed to C. Roger Rees, Ph.D. Professor, Department of Health Studies, Physical Education and Human Performance Science. Dr. Rees can be reached at 516 877 4269 or rees@adelphi.edu.

This research has been received and approved by Adelphi University Institutional Review Board. If you have any questions, concerns or comments, please contact Dr. Patrick Ross, chair of the university IRB, at 516 877 4806 or ross@adelphi.edu.

Please sign this form to indicate your consent to participate in the survey.

I HAVE READ AND FULLY UNDERSTAND THE INFORMATION ABOUT THE SURVEY. I CONSENT TO PARTICIPATE.

_____ _____

Signature of Participant Date

PARENTAL CONSENT FORM

Department of Health Studies, Physical Education and Human Performance Science
Adelphi University, Garden City, NY 11530

Investigators: C. Roger Rees, Emilia Patricia Zarco and Dawn K. Lewis

Your child is being asked to participate in a survey project. This survey has been developed by the Sports Leadership Institute at Adelphi University about attitudes toward and behaviors regarding steroids and other sports supplements. Your child will be asked questions about his/her athletic and exercise experience, attitudes toward and beliefs and values regarding the use of steroids and other sport supplements. There are no wrong or right answers; we are interested in your child's opinion.

Your child's participation in this project is voluntary and is under no obligation to be a participant. He/she can withdraw from the study without any penalty or punishment at any time. It will take approximately 30-40 minutes to complete the survey questions. Your child may ask the survey administrator any questions he/she may have to help him/her understand the questions.

Your child's response will be kept strictly confidential by the study's investigators. His/her privacy will be protected to the maximum extent allowable by law. He/she will not be identifiable in any report of this research study. Only group data will be presented in write-ups and discussions of this study. Results of the study may be made available to you upon request and within the restrictions outlined on this form.

Further information about this project can be addressed to C. Roger Rees, Ph.D. Professor, Department of Health Studies, Physical Education and Human Performance Science. Dr. Rees can be reached at 516 877 4269 or rees@adelphi.edu.

This research has been received and approved by Adelphi University Institutional Review Board. If you have any questions, concerns or comments, please contact Dr. Patrick Ross, chair of the university IRB, at 516 877 4806 or ross@adelphi.edu.

Please sign this form to indicate your consent to your child's participation in the survey.

I HAVE READ AND FULLY UNDERSTAND THE INFORMATION ABOUT THE SURVEY. I CONSENT TO MY CHILD'S PARTICIPATION.

_____
Please print your child's name

_____ _____
Signature of Parent Date

Appendix D